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AUSTRONESIAN TERMINOLOGIES: CONTINUITY AND CHANGE

edited by

A.K. Pawley and M.D. Ross

Department of Linguistics
Research School of Pacific and Asian Studies
THE AUSTRALIAN NATIONAL UNIVERSITY

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PACIFIC LINGUISTICS
Department of Linguistics
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The Australian National University
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CONTRIBUTORS TO THIS VOLUME

K. ALEXANDER ADELAAR
Department of Applied Linguistics
The University of Melbourne
Parkville, VIC 3052, Australia

BRUCE BIGGS
Maori Studies Department
The University of Auckland
Auckland, New Zealand

ROBERT BLUST
Department of Linguistics
University of Hawaii at Manoa
Honolulu, Hawaii 96822, USA

ROSS CLARK
Department of Anthropology
The University of Auckland
Auckland, New Zealand

TERRY CROWLEY
Pacific Languages Unit
The University of the South Pacific
Vila, Vanuatu

TOM DUTTON
Department of Linguistics, RSPAS
The Australian National University
Canberra, ACT 0200, Australia

JAMES J. FOX
Department of Anthropology, RSPAS
The Australian National University
Canberra, ACT 0200, Australia

PAUL GERAGHTY
Institute of Fijian Language and Culture
Government Building
Suva, Fiji

R.C. GREEN
Department of Anthropology
The University of Auckland
Auckland, New Zealand

ROBIN HOOPER
Department of English
The University of Auckland
Auckland, New Zealand

VIKTOR KRUPA
Institute of Oriental and African Studies
Slovak Academy of Sciences
Bratislava, Slovakia

PAUL JEN-KUEI LI
Institute of History and Philology
Academia Sinica
Nankang, Taipei, Taiwan 11529

FRANTISEK LICHTENBERK
Department of Anthropology
The University of Auckland
Auckland, New Zealand

JOHN LYNCH
Pacific Languages Unit
The University of the South Pacific
Vila, Vanuatu

JEFF MARCK
Department of Linguistics, RSPAS
The Australian National University
Canberra, ACT 0200, Australia

ANDREW AND MEDINA PAWLEY
Department of Linguistics, RSPAS
The Australian National University
Canberra, ACT 0200, Australia

LAWRENCE A. REID
Department of Linguistics
University of Hawaii at Manoa
Honolulu, Hawaii 96822, USA

M.D. ROSS
Department of Linguistics, RSPAS
The Australian National University
Canberra, ACT 0200, Australia

DARRELL TRYON
Department of Linguistics, RSPAS
The Australian National University
Canberra, ACT 0200, Australia

JOHN U. WOLFF
Department of Modern Languages and Linguistics
Cornell University
Ithaca, New York 14853, USA

R. DAVID PAUL ZORC
3410 Glorus Place
Wheaton MD 20902, USA

INTRODUCTION

A symposium on 'Austronesian Terminologies: Continuity and Change' was held at the Australian National University, Canberra, from 18 to 21 October 1990. The symposium was one of a series associated with the Research School of Pacific Studies' Comparative Austronesian Project, based in the Department of Anthropology.

The theme of the symposium was the study of Austronesian etymologies, with particular reference to terminologies likely to elucidate the culture history of the Austronesian-speaking peoples. Twenty-two papers were presented, of which twenty-one appear, in revised form, in this volume. The other paper, 'Birth-order terms in the Austronesian languages of Papua New Guinea', by Susanne Holzknecht, has already been published in *The language game: papers in memory of Donald C. Laycock*, T. Dutton, M. Ross and D. Tryon, eds *Pacific Linguistics* C-110, pp.171-177.

Fragmentary though the coverage may be, in terms of domains of vocabulary, subgroups, regions and historical periods, we hope the symposium will draw attention to what has been done so far and what remains to be done in a field of Austronesian comparative linguistics that is of particular interest to other historical disciplines.

We wish to thank the authors and all others who contributed to the success of the symposium, especially Lorraine O'Brien, who bore the brunt of the organising, Joan Birnie, who copyedited the volume and Anne Rees, who did the formatting and typesetting.

Andrew Pawley and Malcolm Ross
Department of Linguistics
Research School of Pacific and Asian Studies
Australian National University

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THE HISTORY OF THING, ANIMAL, PERSON AND RELATED CONCEPTS IN MALAY

K. ALEXANDER ADELAAR

1. INTRODUCTION

In this paper I investigate the origin of the Malay words *baraŋ* 'thing', *binataŋ* 'animal' and *oraŋ* 'person'.[1] I also propose etymologies for some other historically and semantically related words viz. *bər/apa* 'how much/many', *ayam* 'chicken' and *main* 'to play'.

Baraŋ derives from Proto Malayic (PM) **bara?*, a 'marker of uncertainty and indefiniteness of object or number' + **ŋ* (a ligature, see below). *Bər/apa* derives from PM **bara?* + **apa* 'what?'. I reconstruct Proto Malayo-Polynesian (PMP) **baRa*, a 'marker of uncertainty and indefiniteness of object or number' in place of Dempwolff's (1938:23) PMP **baraŋ* 'goods' and Blust's (1980a:48) Proto Western Malayo-Polynesian (PWMP)[2] doublets **baraŋ/barəŋ* 'marker of uncertainty, conditionality or hope'.

Binataŋ must be a relatively recent innovation in Malay. It is phonotactically highly irregular, and it cannot be reconstructed for either PMP or PM. But, on the other hand, it is possible to reconstruct PM **hayam* 'domestic animal (including pig, dog, fowl); plaything'. A pre-PM **q-um-ayam* 'to play' developed into the phonemically reduced and lexicalised Malay *main*.

Dempwolff's (1938:160) PMP **uRaŋ* 'human being' and Blust's (1970:125) PMP **(CtT)uRaŋ* 'in-law' must be related forms. I reanalyse them as PMP **uRaŋ* with a referential derivation **t-uRaŋ*, and I tentatively gloss them 'outsider; affine; friend'.

Finally, my analysis of *baraŋ* sheds some new light on the history of the ligature *ŋ* which among other languages occurs in Philippine languages and in Old Javanese. It was a linker between the parts of a noun phrase, and also between digits and higher order numerals in numeral compounds. The modern West Indonesian languages still reflect **ŋ* in numeral compounds, but they have lost it as a ligature in noun phrases. **ŋ* was lost in Malay, although it must still have been present (in numeral compounds) in PM.

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1 I am grateful to Jim Fox, Chuck Grimes, Laurie Reid and David Zorc for their helpful suggestions and critical reading of earlier versions of this paper. Any errors and omissions left in it are due to my own inadvertency.

2 In Blust's classification of Austronesian languages, PWMP is a primary branch of Malayo-Polynesian and it contains all Malayo-Polynesian languages of the Philippines, Malaysia and West Indonesia, the Chamic languages, Malagasy, and (in Micronesia) Chamorro and Palauan. West Indonesia includes here Bali, Lombok and the western half of Sumbawa and Sulawesi together with the Banggai archipelago in the east and Muna-Buton and the Tukangbesi archipelago in the south-east (Blust 1980a:12). PWMP is, however, not defined by strong linguistic criteria, and it is more of a residue category for Malayo-Polynesian languages that do not belong to Blust's Central or Eastern branches.

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1.1 *Baraŋ* 'THING'

The Malay word *baraŋ* has a wide variety of meanings. Wilkinson (1959) considers these meanings sufficiently contiguous to group them under the same dictionary entry, and he describes *baraŋ* as:

> thing; stuff; wares; goods; something; somehow; more or less; may it happen in some way. In various senses:
> (i) *baraŋ Jərman* goods made in Germany
> (ii) *B[araŋ] apa* whatever. *B[araŋ] bila; B[araŋ]-kala* whenever. *B[araŋ] siapa* whoever. *B[araŋ] suatu* whichever. *B[araŋ] kə-mana* wherever, anywhere
> (iii) *Baraŋ-baraŋ* things of all sorts; impedimenta; the usual things. *Bukan b[araŋ]-b[araŋ] oraŋ* not a man of the usual sort; no ordinary man;...
> (iv) *Baraŋ dipəliharakan Allah daripada səgala marabahaya* may God protect her from all dangers;...

In other dictionaries the different meanings of *baraŋ* are sometimes allotted to homonyms, cf. Echols and Shadily (1989), which distinguishes three homonyms with basically the following meanings:

> *baraŋ*[1] 1. goods, commodity; 2. article, object; 3. (Coll.) s.t. whose direct mention should be avoided (i.e. marijuana, genitals, etc.); 4. baggage, luggage
> *baraŋ*[2] any; *[baraŋ] apa* anything, whatever; *[baraŋ] bila* whenever; *[baraŋ] di mana* wherever, anywhere
> *baraŋ*[3] more or less, approximately

It furthermore gives the following derivations:

> *baraŋ-baraŋ* may it happen that, would that
> *baraŋkali* perhaps, maybe

For practical purposes the second arrangement seems more appropriate, but from a semantic viewpoint it is not hard to conceive that the several homonyms distinguished in Echols and Shadily derive from a single etymon.

I would like to show that (1) *baraŋ* with its different meanings derives from a PMP etymon **baRa* (denoting uncertainty and indefiniteness of object or number) + a fossilised ligature **-ŋ*, and that (2) *baraŋ* is historically related to the Malay quantifier *bər/apa* 'how much/many?',[3] a lexeme which derives from **baRa* + **apa* 'what? (interrogative pronoun)'.

The analysis of (Old Javanese and Malay) *bara/ŋ* as consisting of **bara* + a ligature **-ŋ* was first proposed by Kern (1918:172-173). On the basis of *baraŋ* and corresponding forms other reconstructions have been made, which I am listing below.

The proposed relationship of *baraŋ* to *bərapa* through PMP **baRa* involves some problems which are dealt with in sections 1.2 to 1.5. For instance, is there other evidence for a ligature **-ŋ* in the history of Malay which would support my explanation of the final nasal in *baraŋ*? Is there additional evidence for a PMP **baRa* denoting uncertainty and/or question? What are the arguments against earlier etymologies proposed for *baraŋ* and *bərapa*?

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3 Wilkinson defines *bərapa* as: 'in some quantity; to some extent; how much (if pronounced interrogatively)'.

1.2 Evidence for an enclitic velar nasal

1.2.1 Evidence for an enclitic velar nasal in Malay

None of the known varieties of Malay has a separate morpheme *-ŋ*, and this observation includes Classical Malay and the Old Malay of the seventh century inscriptions of South Sumatra. However, it seems that some forms of Malay exhibit a fossilised *-ŋ*. Standard Malay has a relative pronoun *yaŋ* which is generally assumed to have developed from the third person pronoun *ia* and a clitic element *-ŋ*. This *-ŋ* would be a cognate of the 'linker' or 'ligature' found in languages such as Old Javanese and Tagalog (see below). *Yaŋ* is not likely to be borrowed, as languages that had an influence on Malay do not have such a relative pronoun.

The velar nasal ligature *-ŋ* must be distinguished from a genitive linker. The latter derives from the Proto Austronesian (PAN) genitive marker **ni*, but in the Austronesian daughter languages it may be reduced to an *-N-* which becomes homorganic with the following consonant (Blust 1974b:3ff.). This reduction also occurred in Malay and is witnessed by the third person possessive suffix *-ɲa*, which can be analysed as **ni* + **ia* '(third person pronoun)'. In Old Malay it is also still shown in *-ŋku*, the allomorph of the first person singular possessive suffix *-ku* when it follows a noun head ending in a vowel, for example:

çatru-ŋku 'my enemy' (De Casparis 1956:33 [line5])
huluntuhā-ŋku 'my senior officials'[4]
cūrikā-ŋku 'my knife' (De Casparis 1956:5)

-ŋku can be analysed as **ni* + **ku*, and it also occurs still in Brunei Malay (Nothofer 1991:153). In modern Malay this first person singular suffix lost the nasal and became *-ku* throughout.

Examples of **ni* > *-N-* from Old Javanese:

bapaŋku 'my father'	< *bapa* + *-(ŋ)ku*
mpu-ŋku 'my Lord'	< *mpu* + *-ŋku*
ŋaraŋku or *ŋaran-ku* 'my name'	< *ŋaran* + *-(ŋ)ku*
mitranta 'your friend'	< *mitra* + *(n)ta* (Zoetmulder 1983:233)

Modern Javanese has lost all reflexes of **ni* except in *-né*, the third person genitive pronoun suffixed to nouns ending in a vowel.

In some Classical Malay texts dealing with Javanese tales of romance, kinship terms show an additional *-ŋ* instead of the final glottal stop or ø found in other Malay varieties, cf. *bapa/ŋ* 'father', *kaka/ŋ* 'elder sibling', *cucu/ŋ* 'grandchild', *adi/ŋ* 'younger sibling'. Corresponding forms in Standard Malay are *bapa/ʔ*, *kaka/ʔ*, *adi/ʔ* and *cucu/ʔ* respectively. Comparable formations are found in contemporary Malay dialects which have undergone Javanese influence in the past such as Banjarese of South Kalimantan or the Besemah and Seraway dialects of South Sumatra (Adelaar 1992:119). As these varieties of Malay have been subject to Javanese influence in the past, their ending *-ŋ* in kinship terms must be the result of morphological borrowing from an archaic form of Javanese. This *-ŋ* may reflect an earlier **ni* in the history of Javanese. It could have become part of the preceding noun through backformation when *-ŋku* fell in frequency of usage and its place was taken by *-ku*.

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4 De Casparis (1956:33 [line 7]) translates this phrase as 'my empire'.

1.2.2 EVIDENCE FOR AN ENCLITIC VELAR NASAL IN OTHER WEST AUSTRONESIAN LANGUAGES

The linker *ŋ* occurs rather frequently in Philippine languages, and Tagalog *ŋ* may stand as an example of these. It has an allomorph *na* occurring after consonants other than a glottal (*-ʔ* or *-h*), and it merges with final *n* to *ŋ*; *ŋ* links the different constituents of a noun phrase. Noun phrases consist of a noun and an adjunct, and adjuncts include (a) articles, (b) deictics, (c) interrogatives, (d) quantifiers /indefinites, (e) adjectives and (f) relative clauses (Foley 1976). Examples:

(a)	*a-ŋ bataʔ*	'the child'
(b)	*ito-ŋ bataʔ*	'this child'
(c)	*sa ali-ŋ partiʔ*	'to which party?'
(d)	*marami-ŋ bataʔ*	'many children'
	bahagi-ŋ lupaʔ	'part of the land' (Schachter & Otanes 1972)
	ilaŋ mansanas	'a few apples' (Schachter & Otanes 1972)
	(< *ilan* 'some' + *-ŋ*)	
	apat na piso	'four pesos'
	dalawa-ŋ mansanas	'two apples' (Schachter & Otanes 1972)
(e)	*mataba-ŋ maruno-ŋ tao*	'fat wise man'
(f)	*a-ŋ babae-ŋ nagbabasaʔ*	'the woman reading a newspaper'
	na-ŋ diyariyo	

However, the following examples (from Schachter & Otanes 1972, Chapters 3-4) show that the linker also occurs (a) in compounds consisting of two nouns, (b) in noun phrases consisting of two nouns in apposition, and (c) in numerals between a digit and higher order numbers. In the latter case the linker only occurs if the digit ends in *ʔ* or *h*, and it is assimilated to the following consonant before *púʔ* 'ten'. Examples:

(a)	*laro-ŋ besból*	'baseball game'
(b)	*si Pedro-ŋ maŋiŋisdáʔ*	'Pedro, the fisherman'
(c)	*dalawa-m-púʔ*	'twenty'
	tatlo-m-púʔ	'thirty'
	isa-ŋ daán	'one hundred'

Correspondences with comparable functions and distributions of this Tagalog linker are well represented in the Central Philippine languages.[5]

Another language where *ŋ* is found is Old Javanese. Old Javanese *ŋ* is described as a definite article: it makes the following noun definite, unless this noun has already been made so by other elements in the noun phrase to which it belongs (Zoetmulder 1983:9). Examples:

ŋ kathâ	'the story'
ŋ dânawa	'the demons'

ŋ is often cliticised to a preceding word such as the demonstrative pronoun (*iki/iké* 'this', *iku/iko* 'that', *ika/ikâ* 'yonder'), the emphatic particle *ta*, the connective particle *ni* or the preposition *(r)i* meaning 'in, on, at; by; through; with'. It may also be used to introduce a subject, object or predicate (Zoetmulder 1983:137-142). Examples:

---

5 Zorc (1977:267) even reconstructs Proto Philippine **ŋa ~ *-ŋ*, although the justification of his Proto Philippine language subgroup remains a problem (cf. Reid (1982) and later publications).

ika-ŋ râkṣasa	'that demon, the demon'
warna ni-ŋ kuda	'the horse's colour'
maŋrəŋö ta-ŋ dânawa	'the demons heard it'
lwah inaranan i-ŋ Sindhusâra	'a river which got the name S.'
ri-ŋ dlâha	'in the future'

ŋ is also cliticised to digits when these are used attributively, or when they occur as first constituent in a compound with larger numeral units. If the digit ends in a consonant, the allomorph *-an* applies, as with *pat* 'four' and *nəm* 'six'. Examples:

pat-aŋ tahun	'four years'
four-*aŋ* year	
wwalu-ŋ wiji[6]	'eight ones'
eight-*ŋ* item	
r*wa-ŋ puluh tuŋgal*	'twenty-one'
two-*ŋ* ten one	
rwa-ŋ iwu lima-ŋ atus	'two thousand five hundred'
two-*ŋ* thousand five-*ŋ* hundred	

When numerals are used predicatively, they do not have *-ŋ* suffixed. For example:[7]

lima kwèh nika-ŋ ratha	'there were five charts'
five number that-DEF chart	(lit. the number of charts was five)

The indefinite quantifier *pira* 'how much, how many; some' also requires *-ŋ* when it is used attributively. Compare

pira-ŋ warsa kunaŋ lawas...	'(now) after some years...'
some-*ŋ* year now long	

with the following sentence, where *pira* is used predicatively:

pira ta lawas nira hana ŋkâ...	'when they had been there for some time...'
some EMP long they be there	

Modern Javanese has lost *ŋ* almost completely. It only appears as an enclitic with attributively used digits, or with digits used as the first constituent of a complex numeral, the second constituent of which is *puluh* 'ten', *atus* 'hundred' or *èwu* 'thousand'. It also appears with attributive *pira* 'how much/many'. The allomorph *-aŋ* only applies with *pat* 'four'. Examples (from low Javanese):

ro, loro 'two'	*ro-ŋ puluh* 'twenty'
pat 'four'	*pat-aŋ puluh* 'forty'
təlu 'three'	*təlu-ŋ atus* 'two hundred'
	təlu-ŋ dina 'three days'
pira 'how much?'	*pira-ŋ dina?* 'how many days?'

It has become fossilised in the preposition *iŋ* and in the relative markers *si/ŋ* (low register) and *iŋka/ŋ* (high register).

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6 *Wiji* (lit. 'seed') is used as a numeral classifier.

7 Abbreviations used in examples are as follows: DEF – definite, EMP – emphatic, O – object, PREP – preposition.

Zoetmulder (1983:33) claims that *iŋka/ŋ* developed from an earlier demonstrative pronoun *ikâ* + a definite article *-ŋ*, and he demonstrates this with the following Old Javanese sentence:

Tan mâtîkang nâga Takṣaka, ikaŋ sumahut iŋ wwaŋ atuha nira.
[mati-ika-ŋ] [ika-ŋ]
not dead-that snake *Takṣaka* that-the bite O-PREP person old his
'The snake which bit his father did not die.'

The literal translation of this sentence is 'the snake, the-[one]-having-bitten-his-father, did not die'. In this sentence one can see the development from a demonstrative pronoun or definite article[8] in Old Javanese to a relative marker which it has become in modern Javanese. Zoetmulder (1983:33) likewise assumes that *siŋ* "is still a definite article", which I interpret as meaning that *siŋ* must have developed from the personal article *si* + the definite marker *-ŋ*.

Also among other non-Philippine Western Malayo-Polynesian languages the linker *ŋ* seems to occur only sporadically. The only position where it is found is in numeral compounds. On the basis of evidence from Bario Kelabit (Sarawak), Simalur and Tongan, Blust (1974b:7) reconstructs a PMP numeral linker **ŋ(a)*, reflexes of which are found after digits and before higher order numerals. But the use of the linker in numeral constructions was broader. It occurred:

(1) between the initial digit and following higher order numerals (i.e. a reflex of MP **puluq* 'ten', **Ratus* 'hundred' or **Ribu* 'thousand'), and
(2) after attributively used numerals and quantifiers.

For instance, the Batak languages maintained *ŋ* in numerals and quantifiers which are used attributively before numeral classifiers or which precede the word for 'ten' in numeral compounds. Compare the following Toba Batak examples:[9]

sa/m-pulu	'ten'
obuk piga-ŋ buluŋ?	'how many hairs on the head?' (lit. head-hair how many leaves)
lasunasa/m-batu	'one piece of onion'
gaol pitu-ŋ sihat	'seven rows of bananas'

Balinese has maintained *-ŋ* (a) in attributively used digits ending in a vowel, and (b) in quantifiers when these are used attributively (i.e. before nouns or classifiers). It has also maintained it in numeral compounds between digits and higher order numerals. Examples from low Balinese (note that final *a* is pronounced as *ə*) are:[10]

(a)	*lima-ŋ umah*	'five houses'
	kuda-ŋ dina?	'how many days?'
	sɛla kayu lima-ŋ bəsi?	'five cassava roots' (*sɛla kayu* 'cassava'; *bəsi?* = numeral classifier for roots)
(b)	*tlu-ŋ asa*	'thirty' (*(d)asa* 'ten')
	pitu-ŋ asa	'seventy'
	tlu-ŋ atus	'three hundred'

8 Zoetmulder (1983:31) remarks that the deictic value of *ika-ŋ* is often minimal, so that its function is almost reduced to that of a definite article.

9 For the sake of clarity I follow Warneck's (1977) spelling. It is more conservative than the spelling used by Van der Tuuk (1971), and it ignores most of the far-reaching effects of sandhi in Toba Batak.

10 I am grateful to Ida Ayu Mediani to whom I owe the Balinese examples in this paper.

pitu-ŋ atus	'seven hundred'
ulu-ŋ tali	'eight thousand'

Madurese has maintained *ŋ* in the digits *petto?* 'seven', *ballu?* 'eight' or *saŋa?* 'nine' when these are used attributively or in a numeral compound with *polo* ('ten') (Penninga & Hendriks 1937, Appendix p.3). Examples:

petto-ŋ ropiya	'seven rupiah'
ballu-ŋ are aggi?	'in eight days' (*are* 'day'; *aggi?* 'again')
saŋa-ŋ polo	'ninety'
saŋa-ŋ barna	'nine kinds' (*barna* 'kind')

Malagasy and Maanyan maintain a reflex of **ŋ* in numeral compounds between digits and higher order numerals (Dahl 1951:268ff.). So do the South Sulawesi languages (Mills 1975:230-231). Buginese phrases such as *duaŋŋəsso* 'two days' (< *dua* 'two' + *-/ŋ/-* + *əsso* 'day') suggest that in the history of the South Sulawesi languages **ŋ* was also found with attributively used digits (Sirk 1979:104, n.52).

The Way Lima variant of Lampung (South Sumatra) still has a ligature *ŋaN-* in numerals between digits and *puluh*, the word for 'ten', and sometimes before numeral classifiers (Walker 1976:16-17). This *ŋaN-* is possibly a derivation from an earlier **ŋ*. Examples:

xua ŋam-puluh	'twenty'
pa? ŋam-puluh	'forty'
təlu ŋam-biji manu?	'three chickens' (*təlu* 'three'; *biji* '(numeral classifier)'; *manu?* 'chicken'

Nias has a linker *ŋa-* in numeral compounds between digits and higher order units (Sundermann 1913:63).

Sichule (which is closely related to Simalur) has *ŋa* or the assimilated remainders of a proclitic **ŋ* in numeral compounds between digits and higher order units and between attributively used digits and following nouns or numeral classifiers (Kähler 1955:57-59).

Proto Minahasan used a linker **ŋa* in these cases (Sneddon 1978:101-103).

The Malayic languages (including Malay, Minangkabau in Sumatra, Banjarese, Iban, Kendayan and Salako in Borneo), Chamic languages, Acehnese and Sundanese lost *ŋ* everywhere except in a few fossilised cases in Malay (see section 1.2.1) and in Sundanese (see section 1.5).

There is also no evidence for *ŋ* in Ngaju Dayak, in Gayo or in Rejang, but the sources for Rejang are rather incomplete. The loss of a linker in Malayic, Chamic, Acehnese and Sundanese is interesting from a classificatory point of view as it seems to bear out a close relationship between these languages.[11]

1.2.3 CONCLUSION

The ligature *ŋ(a)* is in some form or other found in a large number of MP languages. Tagalog uses *ŋ/na* in almost any type of adjunct + noun phrase. Old Javanese, where its use is more limited, has it as a definite marker in noun phrases, where it is often cliticised to

[11] But cf. Nothofer (1985:297) who considers the relation between Malay and Madurese at least as close as that between Malay and Sundanese.

demonstratives, emphatic particles or prepositions preceding the head. Both Tagalog and Old Javanese also use *ŋ (/na)* with digits and quantifiers in larger numeral compounds or noun phrases. South Sulawesi, the South-East Barito languages, modern Javanese, Madurese, Balinese and possibly also Lampung, Nias, Sichule and the Minahassan languages use *ŋ(a)* only as an element encliticised to digits in larger compounds and to attributively used digits and quantifiers. Finally, Ngaju Dayak, Gayonese, (Rejang?), Achinese, Sundanese and the Chamic and Malayic languages do not have it as a living morphosyntactic element. This can mean two things: (1) that a PMP linker **ŋ(a)* developed from a linker with numerals and quantifiers to a general linker in phrases consisting of an adjunct + noun, or (2) that a PMP linker **ŋ(a)* occurring in noun phrases and in constructions with numerals and quantifiers lost part or all of its functions in most non-Philippine MP languages. I choose the latter explanation in view of the fact that **ŋ(a)* has the larger range of functions in the Philippine languages, which are morphosyntactically probably among the most conservative in the MP branch, and furthermore that Javanese, a non-Philippine language, has reduced the use of *ŋ* considerably over time. It should be remembered here that Javanese is the only Austronesian language with a well-documented history for over a thousand years. It remains unclear how **ŋ(a)* resulted in an allomorph **na* in Philippine languages.

The fact that Sundanese, Acehnese, and the Chamic and Malayic languages lost *ŋ* as a clitic with digits may be due to the fact that they replaced the PAN numerals **pitu* 'seven', **(w)walu* 'eight' and **siwa* 'nine' with numerals ending in consonants. Such a development might have marginalised the use of *ŋ*.

In view of the gradual loss of the linker **ŋ* in non-Philippine MP languages, I assume that Standard Malay maintained a fossilised **ŋ* in its relative pronoun *ya/ŋ*, and that Malay *bara/ŋ* originated from an original PMP indefinite quantifier **baRa* + **-ŋ*. In the early history of Malay, PM **bara* was followed by **ŋ* in noun phrases. This **ŋ* became gradually encliticised and the resulting *bara/ŋ* was in some cases reinterpreted as a noun meaning 'thing', and in other cases as a marker of indefiniteness or uncertainty.

A development similar to **baRa* + **-ŋ* must have occurred with Toba Batak *manaŋ*. This word often occurs in combination with interrogative pronouns and is glossed as follows:

> *manaŋ* 'or'; *manaŋ...manaŋ...* 'either...or...'; *manaŋ ise* 'somebody, anybody, whoever'; *manaŋ aha* 'something, whatever'; *manaŋ tu dia* 'wherever to'; *manaŋ andigan pe* 'whenever' (Warneck 1977)

(Toba Batak *ise* 'who'; *aha* 'what'; *tu dia* 'whereto'; *andigan* 'when (referring to future)'; *pe* 'also; even'.)

Manaŋ must be related to Malay *mana*, an interrogative pronoun which, depending on context, means 'where; which; what; how; why' (Wilkinson 1959). It developed from an interrogative pronoun or indefinite marker **mana* + **-ŋ*. It acquired **-ŋ* through its occurrence in conjunction with interrogative pronouns or other phrase complements.

1.3 EVIDENCE FOR A PMP **baRa* DENOTING INDEFINITENESS AND/OR QUESTION

Blust (1980a:48) considers Bare'e *bara* 'particle of uncertainty of knowledge, perhaps' as a reflex of either **baraŋ* or **barəŋ* 'marker of uncertainty, conditionality or hope'. Although this is phonologically sound (as Bare'e lost original final consonants), this form can equally

well be related to a PMP **baRa* denoting uncertainty and indefiniteness of object or number. Other reflexes are:

Tagalog *baga* 'interrog[ative] adv[erb], (particle used in questions). Var[iants:] *ba* (northern Tag[alog], *ga* (southern Tag[alog])'
Karo Batak *bara ŋe* 'maybe'[12]
Buginese *sə bara tau* 'any person' (Sirk 1979:104, n.53; *tau* 'human')
Madurese *(sa-)bara* '(a) hundred million'
Old Javanese *bara-bara, ba-bara = baraŋ; baraŋ* 'anything which, whatever, just any(-body); just as it comes, just anyhow, indiscriminately, without further thought, without sufficient cause; at any time, continually'
modern Javanese *bara-bara* 'fortunately that, it would be good if' *bara-a, m-bara* 'maybe'; *pira-ŋ bara, sə-bara* 'when, as soon as'
Iban *bara?* 'given to frivolity: *b[ara?] bə main kita? tu?* 'you do nothing but play about'; *b[ara?] dara* 'a frivolous woman'

The Tagalog correspondence became a question marker. The change from a marker of indefiniteness and uncertainty into a question marker is not difficult to conceive, especially since *ba* and *ga* are more frequently used in information questions than in yes-no questions (Schachter & Otanes 1972:424). A complicating factor for Tagalog is that it also has another correspondence, *bala*, an indefinite pronoun which often occurs with the linker *ŋ* suffixed to it, as in *sa balaŋ manalo* 'to whoever will win' (Kern 1918:172); Kern proposes *bala* as a regular cognate form of Malay *bara/ŋ*. The semantics of *bala* would allow for such a cognate relation, but the sound correspondences do not, since PMP **R* regularly becomes Tagalog *g* (as in *baga*), and not *l*, except in Malay loanwords. This leaves three possibilities for the origin of *bala*. Firstly, the agreement between Tagalog *bala* and Malay *bara/ŋ*, etc. is due to chance resemblance. Secondly, *bala* is borrowed from an early form of Malay in which **bara?* had not yet acquired the now fossilised suffix **-ŋ*. Thirdly, *bala* is borrowed from Malay and it reflects Malay *bara/ŋ*, but the final nasal was interpreted as a linker and became disconnected from the root through backformation. With the historical data at hand I find it impossible to decide between these three possibilities. In spite of this, however, it is clear that *baga* (whether in full or reduced form) is the inherited Tagalog reflex of PMP **baRa*, and not *bala*.

In Madurese *sa-bara*, the semantic shift went from 'indefinite number' to 'a number that is difficult to grasp because of its largeness', such as a hundred million. A shift from 'indefinite number', 'night', 'obscurity' or 'mist' to 'thousand' or higher numbers is not uncommon, (cf. Malagasy *alina* I '10,000', *alina* II 'night, obscurity'; Dairi Batak *gəlap* I 'obscure', *gə lap* II '10,000 or higher numbers').

In Iban, the meaning elements of uncertainty and indefiniteness changed to frivolity.

I assume that pre-Malay **bara*, Tagalog *baga*, Bare'e, Karo Batak and Buginese *bara*, and Iban *bara?* are reflexes of the same MP protoform which I reconstruct as **baRa*, a marker of uncertainty and indefiniteness of object or number. Old and modern Javanese *bara* is probably borrowed from Malay, since both Javanese *b* for PMP **b* and Javanese *r* for PMP **R* (instead of expected *w* and ø respectively) indicate borrowing.

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12 *ŋe* is an emphatic marker which is cliticised to the preceding word and which is realised as [ŋ] if this word ends in a vowel. As a result, *bara ŋe* is pronounced [baraŋ]. This apparently confused Neumann (1951) who wrote for this form: '*bara ŋe = baraŋ* I?' and for *baraŋ*: I 'maybe, possibly; II good(s), belongings, possessions'.

The assignment of Malay *bər/apa* to a now lost pre-Malay **bara* (< PMP **baRa*) + the interrogative pronoun *apa* 'what?' is phonologically sound. In Malay phonological history a word of more than two syllables tended to become contracted if it contained adjacent vowels or vowels that were separated from each other by a glottal. Furthermore, in most present-day variants of Malay, antepenultimate vowels have as a rule been neutralised to *ə* (for examples, see section 2). An allegedly frequently used phrase like **bara *apa* would therefore have become *bər/apa* in allegro speech, for example:

Proto Malayic **bara* + **apa* > pre-Malay **barāpa* > **barapa* > *bərapa*

That Proto Malayic **bara* and **apa* did not yet occur as a compound is evident from the fact that this compound has only a limited distribution in the Malayic language subgroup; cf. Banjarese *sa'apa*, Salako *saŋape*, Kendayan *saŋahe*, Iban *məsak* (occurring along with *bərapa*, which is borrowed), Minangkabau *barā* (< **bara - a(ha)*), Jakartanese *bərapè*, South Sumatran Malay *bəxapɔ*, Urak Lawoi' *brapa* (which is a loan).[13]

1.4 EVIDENCE AGAINST EARLIER RECONSTRUCTIONS ON THE BASIS OF MALAY *baraŋ* AND ITS CORRESPONDENCES

The following reconstructions have been proposed on the basis of Malay *baraŋ* in the sense of 'goods, commodity; article, object; thing; baggage, luggage':

PMP **ba[r]aŋ* 'goods' on the basis of Malay *baraŋ*, cf. Toba Batak *baraŋ* 'goods', Javanese *waraŋ* [sic][14] 'goods' and Ngaju Dayak *baraŋ* 'goods' (Dempwolff 1938:23)

Proto Malayo-Javanic [PMJ] **baraŋ*, cf. Sundanese, modern Javanese *baraŋ* and Madurese *bhárâŋ* 'thing, stuff, goods' (Nothofer 1975:137)

Moreover, Mills (1975:625) on the basis of corresponding forms in South Sulawesi languages reconstructs

Proto South Sulawesi [PSS] **baraŋ* 'goods, merchandise'.

On the basis of *baraŋ* in the sense of 'any', 'more or less', 'perhaps' and 'would that', Blust (1980a:48) reconstructs the following doublets:

PWMP (a) **baraŋ*, (b) **barəŋ* 'marker of uncertainty, conditionality or hope', cf. (a) Kankanay *bálaŋ* 'provided, it is to be seen if, we will see if, it is to be hoped that (used only in tales)', Hanunóo *báraŋ* 'perhaps, expressing uncertainty or suspicion', Karo Batak 'perhaps'; (b) Ilokano *báreŋ* 'let us hope, hoping; if perhaps, maybe, haply, possibly', Kayan *barəŋ* 'apologetically – "it is not as if"; interrogatively – "is it not?"'

In a note Blust adds:

> Isneg *báraŋ* 'a conjunction: if, perhaps, haply, let us hope', Iban *baraŋ* 'according to, if, any, depending on, etc.', Malay *baraŋ-kali* 'perhaps', *baraŋ siapa* 'whoever', Bare'e *bara* 'particle of uncertainty of knowledge, perhaps' can be assigned to either set.

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13 My conclusion that Iban *bərapa* and Urak Lawoi' *brapa* are Malay borrowings is based on the fact that these languages have no interrogative pronoun *apa* nor any derivation thereof (both languages have *nama* instead).

14 In Javanese *waraŋ* actually means 'rat poison'. It seems that Dempwolff unconsciously applied an expected sound law to Javanese *baraŋ*, which has more or less the same meaning as Malay *baraŋ*.

I reject the protoforms proposed above on a number of grounds which may not be conclusive in themselves but which reinforce each other to the point of making it unlikely that there ever was a P(W)MP, PMJ or PSS **baraŋ*.

Firstly, these etyma reflect PAN **r*. This protophoneme has been the subject of some controversy among Austronesianists. Some reject it and find that it is based on the evidence of loanwords (e.g. Wolff 1974), whereas others believe that it is a firmly established protophoneme (e.g. Blust (1980a:20ff.) and numerous other Blust publications). But no matter what stand one takes on this matter, there is general agreement about the fact that PAN **r* was reconstructed in a large number of etyma which turn out to be false (in contradistinction to etyma containing **R*).

Another factor is that the alleged reflexes of P(W)MP/PMJ/ PSS **baraŋ* have remained remarkably similar in meaning, and that some of them even reflect the nominal as well as the adverbial meanings which have been reconstructed. Both meanings are found in Malay, and all languages showing reflexes of P(W)MP/PMJ/PSS **baraŋ* have been under considerable direct or indirect Malay influence.

Finally, the phonological shapes taken by the alleged reflexes of **baraŋ* generally favour a borrowing argument. This is particularly clear in the case of Javanese *baraŋ*, Madurese *bharaŋ* and Kankanay *bálaŋ*. Javanese *b* (in positions other than following a schwa) and Madurese *bh* are usually loan phonemes (Nothofer 1975:130). Kankanay *bálaŋ* (which only occurs in tales, cf. Vanoverbergh 1933) reflects neither PAN **r* nor PAN **R* or **l*. These three protophonemes generally merged as Kankanay *l*, but Reid (1973) points out that in certain positions they merged as *ʔ*, *w* or a voiced velar fricative. In the environment **a _ a* the expected reflex is a voiced velar fricative, and therefore *bálaŋ* must be a loan.

Ilokano and Kayan both have *barəŋ*, which obliged Blust to reconstruct a PWMP doublet **barəŋ*. The schwa in Ilokano and Kayan *barəŋ* would at first sight suggest that these forms cannot be borrowed from Malay. But both languages sometimes change the last syllable *a* of loanwords into a schwa. Compare the following loanwords in Ilokano (Reid 1982:209-210):

pandək 'short'	< Tagalog *pandak* 'id.'
siŋkəd 'ratify, confirm'	< Tagalog *siŋkad* 'ratify, confirm'
timbəŋ 'scales'	< Malay, Tagalog *timbaŋ* 'id.'

Compare the following loanwords in Kayan:

adət 'customs, law; behaviour'	< Malay *adat* 'id.' (< Arabic)
harəp 'hope, wish'	< Malay *harap* 'id.' (< [Old] Javanese)
səluən 'trousers'	< Malay *səluar* 'id.' (< Persian)
akən 'cunning'	< Malay *akal* 'id.' (< Arabic)
tuən, *tuan* 'European'	< Malay *tuan* 'id.'

So there is no phonological obstacle to considering Ilokano and Kayan *barəŋ* as loanwords from Malay. Moreover, in the case of Kayan *barəŋ* (with the above meaning) Southwell (1990) also has a synonym *barəŋ* 'equipment, things', which he labels as a Malay loanword, and which occurs along with a more original synonymous term *davən*.

1.5 EVIDENCE AGAINST BRANDES' ETYMOLOGY FOR MALAY *bərapa*

As far as I know, no reconstruction has been proposed on the basis of *bərapa*. *Bərapa* replaced an earlier PAN **pija* which is still well represented all over the Austronesian language family.

Brandes (1884) analysed *bərapa* as a form of *apa* 'what?' prefixed with the intransitive verbal marker *bər-*, and later scholars have not yet questioned his etymology. But there is no strong functional or semantic argument for this analysis. Besides, Brandes' argument would fail to explain quantifiers on the basis of *bar-* or *bər-* in languages which do not have an intransitive verbal prefix *bar-/bər-*, such as Sundanese and Madurese.

Sundanese has *(sa)baraha* 'how much/many?', which consists of an unidentified *(sa-)bar/-* + *aha* 'what?' Sundanese intransitive verbs are generally marked with an infix *-um-*, and there are also a few intransitive verbs with *a-*, *ma-* and *ba-*, but not with *bar-*.[15]

Madurese has *barampa* (low register) 'how much/many; how large?', It also has *bar-iya* (low register) and *bar-into* (middle register) 'such' and *sa-bar-iya* (low register), *sa-bar-into* (middle register) 'as big as (this)'.[16] But it does not have a prefix *bar-*, nor does it have **ampa*. Other Madurese forms reflecting **baRa* are *bharaŋ* 'something, good(s), object, luggage; (the thing) that/which', *sa-bharaŋ* 'each', *bha-baraŋ* 'all', *sa-bharaŋ-an* 'average, usual; no matter what', and *sa-bara* (section 1.3). *Bharaŋ* is likely to be borrowed from Malay (section 1.4). *Sa-bara* on the other hand reflects MP **baRa* as an indicator of indefinite number (see section 1.3).

Bər/apa, *bar/aha*, *bar/ampa*, *bar/iya* and *bar/into* have replaced PAN **pija* 'how many'. It is likely that these innovations originated through language contact between Malay, Sundanese and Madurese.

This is most clearly the case with Madurese *bar/ampa*, which may be an early borrowing from Malay.[17] Madurese has no interrogative pronoun **ampa* or a derivation thereof, whereas Malay has the following range: *apa* 'what?'; *si/apa* 'who?'; *kən/apa* 'why? how?'; *məŋ/apa* 'why?'; *bət/apa* 'to what extent?'.

Sundanese *(sa)bar/aha* is derived from **aha*, which is still found in *s/aha* 'who?', *kumaha* 'how?', *n/aha* 'why?' *ir/aha* 'when?' The development of *(sa)bar/aha* in analogy to *bər/apa* may be the result of Malay influence, but it could also an independent development.

2. ON THE HISTORY OF MALAY WORDS FOR ANIMAL

A remarkable fact about the Proto Austronesian lexicon is that it seems to have lacked a general term for 'animal'. The *Comparative Austronesian dictionary* (Tryon ed., 1994) provides data from eighty languages from all main branches of the Austronesian family. The general term for 'animal' in these languages is given under gloss no. 03.110.

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15 Interestingly enough, what Sundanese does have is a verbal prefix or proclitic *baraŋ-* denoting indefiniteness of object. Compare:
hakan 'eat' *baraŋ-hakan* 'eat things, eat (in general)'
gawe 'work' *baraŋ-gawe* 'do some work, work a bit'
bili 'buy' *baraŋ-bili* 'do some buying'

16 *-/iya* and *-/into* are deictic elements which only occur in combination with *bar-*, *da?-* or *ka?-*.

17 In a more recent borrowing one would expect *bh* instead of *b*.

From the wide variety of terms listed under this gloss it appears that:

- there is no set of related terms which serves as firm evidence for the reconstruction of a Proto Austronesian etymon;
- many languages use paraphrases such as 'living creature', 'animate thing', 'hunting object', or they use the same term as for 'game' or 'meat';
- some languages use words the primary meaning of which is 'dog', 'bird', 'pig' or some other specific animal;
- some of the terms given actually refer to 'domestic animal' or 'cattle' rather than to 'animal' in general;
- many languages use loanwords; as far as Indonesian languages are concerned, these loanwords are often derived from either Malay *binataŋ*, Sanskrit *sattva* or Arabic *haywān* (all meaning 'animal').

An exception to the heterogeneity of general terms for 'animal' seems to be the South Sulawesi languages, which generally reflect a protoform which could be reconstructed as Proto South Sulawesi **olo?-olo?* for this notion.

As all languages which have *binataŋ* or a corresponding form have undergone Malay influence, I assume that they borrowed this form from Malay.[18]

Another problem is the origin of Malay *binataŋ*, which cannot be an inherited word either. Inherited trisyllabic Malay words always have a schwa in the first syllable, except when the following consonant is a semivowel or *h* (Adelaar 1992:10). The shape of *binataŋ* furthermore suggests that it contains the infix **-in-*, a PAN passive marker or nominalising infix which was already lost in PM (Adelaar 1992:193). Other Malayic languages do not necessarily have a form corresponding to *binataŋ*, cf. Iban *jəlu* '(wild) animal, game', Salako and Kendayan *laok* 'wild animal; meat, side-dish'. When they do have a corresponding form, its shape suggests borrowing because of its *i* (instead of schwa) in the first syllable, cf. Jakartanese, Seraway (Sumatra) *binataŋ*.[19] The origin of Malay *binataŋ* remains unclear. Brandes (1884:175, fn.3) related it to Ibanag *bataŋ* 'trap-net' and to Sundanese *pamataŋ* 'someone hunting deer on horseback with a spear, a sword or a lasso' (derived from *wataŋ* which is glossed 'lance' in Eringa 1984). While not impossible, the connection remains vague.

In general, then, there is little evidence for a protoform on whatever level on the basis of *binataŋ* and its correspondences, and there is also little evidence for a general and exclusive term for 'animal' in Proto Austronesian.[20]

But we are on firmer ground when looking for the history of the term for domestic animal. Dempwolff reconstructed PMP **'ajam* 'be domesticated' which was allegedly homonymous to his PMP etymon **'ajam* 'to play'. With the increase of data since he compiled his PMP lexicon, we now know that these homonyms were probably one etymon covering a configuration of related meanings, and that this etymon should be reconstructed (in Dyen's orthography) as **qayam* 'domestic animal (including pig, dog, fowl); plaything'.

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18 A remarkable corresponding form is Cham *pinataŋ*, which is glossed 'machine' in Moussay (1971).

19 A problem in evaluating forms corresponding to Malay *binataŋ* in other Malayic isolects is that the available dictionaries do not specify what the status, degree of adaptation or frequency of occurrence of such forms is.

20 Dr D.J. Prentice (pers.comm.) first drew my attention to the lack of a term referring to animals as a category in Austronesian languages.

In Malay the reflex of **qayam* underwent a semantic narrowing-down, and we find *ayam* 'chicken'. But this is not the meaning which should be reconstructed for PM **hayam*, as other Malayic languages have different meanings. Compare corresponding forms like Kendayan *pa-hayam-an* 'livestock', Iban *ayam* 'plaything, toy, pet'; *uduk ayam* 'pet dog'; *ŋ-ayam* 'play'. These lead to the conclusion that Proto Malayic still had the original Proto Western Malayo Polynesian meaning configuration of 'tame' (or 'domesticated') and 'playing'. From a Proto Malayic **hayam* the meaning narrowed down to one particular domesticated animal in Malay, to 'domesticated animals (in general)' in Kendayan, and to 'plaything' and 'pet animal' in Iban. In Malay it replaced PM **manuk* 'chicken', reflexes of which are still found in Kendayan and Iban.

But it seems that developments concerning PM **hayam* have not stopped there. Malay has a word *main* for 'to play', which has corresponding forms in other Malayic languages and in Achehnese and Cham.[21] *Main* must be a reflex of a pre-PM verbal derivation[22] **q-um-ayam* 'to play', and there are a number of less common but regular Malayic changes to explain its present shape. These are:

(i) Vowel contraction and assimilation of adjacent vocoids

As I already mentioned in the last part of section 1.3, in the history of Malayic languages the tendency to vowel contraction is most commonly observed in words of more than two syllables. It was already operative in Proto Malayic and it is still so in present-day Malayic languages. It is one of the ways in which tri- or tetrasyllabic words could become disyllabic, which is phonotactically the preferred structure of a Malayic root. The contraction affected adjacent vowels, or vowels which were separated by a glottal. Examples:

PMP **Rahut* 'split wood' + *-an > Malay *rotan* 'rattan'
PMP **ma-iRaq* 'red' > Malay *merah*
PM **kələ(hʔ)əm* 'obscure; to set' **hari* 'day' + **-an* > **kələm (h)ari-an* > Malay *kə(l)maren,kə(l)marin* 'yesterday'
PM **k(a,ə)+ *iri* 'left' > Malay *kiri*
PMP **ma-kaʔən* 'eat' > PM *makan
PM **hulu*ʔ *tu*ʔ*ət* 'kneecap' > Malay *lu/tut*
P(W)MP **(dD)əhuk (-(dD)əhuk)* 'sit' > PM **duduk*

Another, less common, form of vowel reduction is the assimilation of the sequence **-Vya-* to *-Vi-* in Minangkabau and Seraway, two Sumatran Malayic languages. This reduction has also occurred in disyllabic roots. Examples:

PM **bayar* 'pay' > Minangkabau *baiᵊ*[23] Seraway *baix* 'id.'
**layar* 'sail' > Minangkabau *laiᵊ*[23] 'id.'
**lAmpuyaŋ* 'ginger plant' > Minangkabau *lampuiəŋ* 'id.'
**bayas* 'k.o. palm tree' > Seraway *bais* 'id.'

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21 The sound changes outlined in what follows were not shared by Cham or Achehnese. Therefore, as a consequence of my etymology for Malay *main*, Cham *mu'ĭn* and Achehnese *meuʔɛn* must be loanwords from Malay.

22 Or at least a derivation from an earlier stage than Proto Malayic, since there is no evidence that Proto Malayic still had productive infixes (cf. Adelaar 1992:193-194).

23 The endings of the Minangkabau forms *baiᵊ* and *laiᵊ* are the result of velarisation of **i* through a following velar fricative which was subsequently lost (so, Proto Malayic **bayar* > **baix* > **baiᵊx* > *baiᵊ*, and Proto Malayic **layar* > **laix* > **laiᵊx* > *laiᵊ*).

The same **-aya-* > *-ai-* assimilation has taken place in Malay *lain* 'other', which derives from an original *lai* (still found in Old Malay) + *-an* (Adelaar 1988:71).

(ii) A constraint against **-ip* and **-im* endings

In PM there seems to have been a constraint against last syllables containing **i* + a final labial (i.e. a constraint against **-ip* and **-im* endings). Several factors indicate this:

(a) as a rule, Malayic roots ending in *-ip* and *-im* are borrowed (mostly from Arabic, e.g. *hakim* 'judge'; *iklim* 'climate'; *musim* 'season'; *nasip* 'fate'; *tabip* 'physician');
(b) the few words ending in *-ip* or *-im* that are not readily identifiable as loanwords do not have sufficient correspondences within the Malayic subgroup to yield evidence for a PM etymon;
(c) the best attested (and one of the very few) higher order etyma ending in **-ip* is reflected with vowel metathesis in the Malayic languages, for example:

PAN **quDip* 'live' > PM **hidup* 'id.'

(iii) Apocope of the first syllable after affixation of **-um-*

The PAN affix **um-* (before initial vowels) or **-um-* (after initial consonants) only appears in fossilised forms in Malayic languages, and it probably had already ceased to be a living affix in PM (Adelaar 1992:193-194). When **-um-* was infixed after initial **q* or a labial, the resulting syllable became reduced to *m/-* in Malay, as is shown in PAN **-um-* + **qinum* 'drink' > Malay *m/inum* 'id.' and in PAN **-um-* + **paCəy* 'death' > Malay *m/ati* 'dead'. In fact, in cases where an initial labial applies, this reduction is a rather widespread phenomenon among Austronesian languages. In the case of initial **q*, several factors account for this reduction:

- loss of initial **q* (PAN **q-* > PM **h-* > Malay (usually) ø, (sometimes) *h-*;
- antepenultimate vowel neutralisation;
- a tendency towards disyllabicity;
- particularly in trisyllabic roots, initial *(h)ə-* sequences are disfavoured, and **(h)ə-* sequences as a rule were lost (Adelaar 1992:52-53).

These changes and tendencies must have lead to the present shape of *main*. If we accept the possibility that contraction was limited not only to adjacent vowels but also to adjacent vowels plus semivowels (as it sometimes was in Minangkabau and in Seraway disyllabic roots, and as it may have been in Malay *lain*), Malay *main* can be derived from it through the following stages:

I	WPMP **-um-* + **qayam*	---->	**q-um-ayam*
II	assimilation of adjacent vocoids: **-ya-* > **-yi-*	---->	**qumayim*
III	contraction of **-yi-* to **-i-*	---->	**qumaim*
IV	PMP **-im* > PM **-in*	---->	**qumain*
V	**q* > **h* or ø; antepenultimate vowel neutralisation	---->	**(h)əmain*
VI	loss of initial **(h)ə-* sequence	---->	*main*

The relative order of stages IV, V and VI could also have been different, but they must have taken place after stages I and II.

A semantic contingency of 'domestic animal', 'pig', 'dog', chicken' and 'to play' is exemplified in the reflexes of **qayam* of many other Austronesian languages (Dempwolff

(1938:13) and other sources).[24] Compare in this respect also Malay *anjiŋ* 'dog' which has a phonologically regular cognate *eɲekŋ* 'domestic pig' in Salako.

3. HUMAN BEING

The general term for 'human being' reconstructed for Proto Austronesian is **Cau*. This term has reflexes in languages of Taiwan, the Philippines, Borneo,[25] Sulawesi, the Molucca Islands and Oceania. Other languages have a reflex of PMP **qaRtaq*[26] for this notion. These languages are found in Simalur (off Sumatra's west coast), in eastern Indonesia (eastern Sulawesi, central and southern Molucca Islands, Lesser Sunda Islands), in the Negrito languages of the Philippines and in some Oceanic languages (Blust 1972b:166ff.).

Other terms for 'human being' which are not limited to well-defined linguistic subgroups are those reflecting PMP **qulun* and **uRaŋ*. Reflexes of **qulun* meaning 'human being' are found in Borneo (including Malagasy) and in the various forms of Lampung; **qulun* has reflexes meaning 'slave' or 'servant' in the Chamic languages, in some Bornean languages, and in languages of Java and Sumatra. Reflexes of **uRaŋ* meaning 'human being' are found in the Chamic and Malayic languages and in Achehnese, Javanese, Sundanese and Madurese.

There is a complication involved in the meaning that should be assigned to **qaRtaq* and **qulun*. Reflexes of these etyma mean either 'human being' or 'slave' (or, in some Philippino languages, 'Negrito, black person' for **qaRtaq*).

For **qaRtaq*, Blust tries to reconcile these notions through a reconstructed meaning 'outsiders, alien people' (Blust 1972b:169).[27] By giving different meaning connotations to **Cau* ('real people; us; our own kind') and **qaRtaq* ('outsiders, alien people') he also accounts for the otherwise awkward fact that there are two Proto Austronesian etyma with reflexes having the meaning 'human being'. But where it is easy to see how a word can change its meaning from 'outsiders; alien people' to 'slave', it is much less easy to see how it could change this meaning into 'human being'. Some of the Philippino Negritos use a reflex of **qaRtaq* to refer to themselves, and Reid (1994) finds it unlikely that they would use as an endonym a term which originally referred to 'outsider'.

A more likely explanation is that a post-PMP **qaRtaq* originally meant 'human being' and that via slave trade and subordination this term became reinterpreted as 'slave' or 'subordinate' by the slave-trading or subordinating people. Parallel semantic developments must have taken place in the developments of the terms for 'slave' and 'Slavic person' in Western European languages, and in the uses of the term *kanaka*[28] in the Pacific. One of the implications of this explanation is that reflexes of **qaRtaq* meaning 'slave' or 'Negrito' must be borrowings. This would allow for a more accurate insight into the spread of inherited reflexes. Applying this explanation to reflexes of **qulun* would single out Lampung (South

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24 Compare also semantic shifts of PAN **manuk* 'fowl' in the daughter languages.

25 But here, as far as I know, only in the Tamanic languages which are closely related to the South Sulawesi languages (Adelaar 1994).

26 Compare Blust's PAN **qa(R)(CtT)a* 'outsiders, alien people' (Blust 1972b:169) as modified by Reid (1994). This etymon has no reflexes in Taiwanese languages.

27 Blust (1972b) seems to suggest a reconstruction of the same meaning for **qulun* (for which Dempwolff (1938:162) gives 'human being', in which he observes 'a parallel duality of meaning'.

Sumatra) and Bornean languages (+ Madagascar), as languages in which **qulun* is inherited, as these are the only languages where it means 'human being'.

Blust's gloss 'outsider; alien people' for **qaRta* would certainly befit PM **uraŋ*, which is a reflex of PMP **uRaŋ* 'human being' and which I initially glossed 'human being' (in my 1985 thesis). I did this on the basis of the usual meaning of its modern Malay reflex and on the basis of its general meaning given in dictionaries of Malayic languages and dialects. However, field experience with Salako and a further investigation of the data provided by the Malay and Iban dictionaries induce me to expand the meaning of PM **uraŋ* to 'human being; outsider'.

The Salako term *uràkŋ*, although generally meaning 'human being' is never used for one's own relatives or close friends. In fact, calling relatives or close friends *uràkŋ* would insult them and alienate them: one would call them *uràkŋ* only in order to imply a break of ties. The term *uràkŋ* is used to refer to outsiders (possible enemies, headhunters), or to an ethnic entity as in *uràkŋ Saribas* 'the Ibans', *uràkŋ Laut* 'the Malays', *uràkŋ Salako* 'the Salakos'.

For Iban *uraŋ*[29] Richards (1981) gives two meanings: 1. 'person, people, someone, anyone'; 2. 'someone's, another's, other people's'. Along with the second meaning go phrases like *apay uraŋ* ['father of people' =] 'father of a family', *utay uraŋ* ['things of people' =] 'other people's belongings', etc.

The connotation of 'outsider' was lost in Malay *oraŋ*, although it is still attested in phrases like *nəgəri oraŋ* ['countries of people' =] 'abroad, foreign countries', *istəri oraŋ* ['the wife of people' =] 'someone else's wife' and *baraŋ oraŋ* ['things of people' =] 'other people's belongings'. Further study of Malayic languages and of Classical Malay texts may yield additional evidence for an original meaning of 'outsider' for PM **uraŋ*.

There is corroborating evidence for this gloss outside the Malayic subgroup. The connotation of 'outsider' is more explicit in the Jarai and Moken reflexes of PMP **uRaŋ*.[30] Jarai *arăŋ* is glossed as 'undefined person' (Lafont 1968), and in running text it is often translated as 'someone else' or 'other people' (cf. French *autrui*, Lafont 1963:39 and passim). Moken *olaŋ* is glossed 'another, [? he, etc.]' (Lewis 1960:90).

The Jarai and Moken evidence would indicate that the connotation 'outsider' can also be attributed to an ancestral form **uRaŋ* in a protolanguage of a higher order than PM. As a matter of fact, this seems to be possible, although there remain some reflexes of PMP **uRaŋ* showing semantic developments which are not directly clear, and which need further investigation. Dempwolff labelled his PMP **uRaŋ* 'human being', but present-day Malayo-Polynesian languages often have corresponding forms meaning 'affine', 'friend' or 'cross-sibling'. Compare:

Cebuano	*ugáŋan* 'parent of one's spouse'
Macassarese	*uraŋ* 'companion'; *si-uraŋ* 'with'
Yamdena (Tanimbar)	*ure* 'cross-sibling + parallel cousin'
Kei	*uran* 'cross-sibling, cousin'

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28 *Kanaka*, the Hawaiian word for 'person', acquired the meaning 'seasonal labourer' in Tok Pisin, where it is now used in a pejorative sense to refer to an uneducated person from the bush.

29 Spelled 'orang' in Richards' orthography.

30 Jarai is spoken in Pleiku province, Vietnam; Moken is spoken in the Mergui Archipelago, South Mianmar.

Sikka (East Flores)	*wra* 'affine of the same sex of a woman (father's sister's daughter, mother's brother's daughter, husband's sister, brother's wife)'
Tana Ai (dialect of S. Kanere, East Flores)	*ura* 'sister, brother's wife, mother's brother's daughter, father's sister's daughter (woman speaking); cross-cousin, affine of the same sex (woman speaking)'
Tetun (Timor)	*oan* 'child, offspring'
Toba Batak	*uraŋ* 'offspring'
Tondano	*uraŋ* 'offspring'

These meanings must be related, and Dempwolff's gloss 'human being' for PMP **uRaŋ* is therefore somewhat misleading. The latter must be a semantic specification that took place at a relatively recent date in a few West Indonesian languages (Malay, Cham, Javanese, Madurese). Dempwolff's PMP **uRaŋ* should rather be glossed 'outsider; affine; friend'.

Cebuano *ugáŋan* refers to an affinal relationship, and Macassarese *uraŋ* to friendship.

The unspecified meaning which Tanimbar *ure* and Kei *uran* have in common is that of 'cross-sibling'. In the Tanimbar and Kei context, cross-sibling terms emphasise the fact that female siblings will eventually become members of a different clan, which is ideally one particular wife-taking clan in a chain of clans in a circular connubium system. So they will eventually become outsiders, members of an affinal clan. The meaning of Tana Ai *ura* and Sikka *wra* (basically, 'female affine of a woman') seems to be a later development thereof.

The Tetun, Toba Batak and Tondano meaning of 'offspring' must also have developed from PMP **uRaŋ*, but here the semantic development is much less transparent (particularly considering the fact that Toba Batak *uraŋ* has a relatively long history in common with Karo Batak *t/uraŋ* 'cross-sibling', see below). The Toba Batak term for 'son' is *anak*, which reflects PMP **anak* 'offspring'. The fact that PMP **anak* became marked for male gender in Toba Batak would suggest that another term for 'offspring', such as Toba Batak *uraŋ*, was originally also marked for (female) gender. However, the present Toba Batak term for 'daughter' is *boru*, which speaks against such a speculation. The semantic developments of Tetun *oan* and of Toba Batak and Tondano *uraŋ* require further study.

The configuration of meanings 'outsider', 'affine' and 'friend' is also represented by the reflexes of Blust's (1970:125) PMP etymon **tuRaŋ* 'in-law'.[31] Compare:

Tagalog	*ma-núgaŋ* 'child-in-law'
Bikol	*tugaŋ* 'sibling; in-law'
Western Bukidnon Manobo	*e-nugaŋ* 'parent-in-law'
Proto Oceanic	**turaŋ* 'companion, friend, neighbor, various kinsmen'

The following reflexes can be added to Blust's material:

Ilokano	*katugaŋan* 'parent of one's spouse'
Bontok	*katogáŋan* 'id.'
Isneg	*túxaŋ, manúxaŋ* 'son-in-law, daughter-in-law'; *katuxáŋan* 'father-in-law, mother-in-law'

31 As Blust's PMP **(CtT)uRaŋ* only goes back as far as PMP (which merged PAN **C* and **t* to **t*) and furthermore PMP **T* turns out to be an erroneous protophoneme (Dahl 1981:23-25), I will use a more convenient PMP representation **tuRaŋ*.

Sangirese	*tuhaŋ* 'older sibling'; *manuhaŋ* 'child-in-law'
Karo Batak, Dairi Batak, Alas Batak (= the northern Batak linguistic subgroup)	*turaŋ* '(term of address to cross-sibling)'
Buru	*tuha* 'to accompany; with' (Grimes 1991:269)

It appears that reflexes of PMP **tuRaŋ* refer to affinal relationships in Philippine languages,[32] to relations of friendship or to kin relationships in Oceania, and to a cross-sibling relationship in Northern Batak. As the Batak peoples have social organisations which are in some crucial ways similar to that of the Tanimbarese and Keiese peoples (notably with a prescribed circular connubium system), the Karo Batak concept of 'cross-sibling' must be closely associated with that of 'affine'.

The meaning of Sangirese *manuhaŋ* indicates an affinal relationship (the meaning of Sangirese *tuhaŋ*, on the other hand, does not).

The Buru reflex has become a verb the meaning of which is still associated with that of 'companion'.

It is quite likely that this PMP **tuRaŋ* is related to PMP **uRaŋ*. The range of meanings of their reflexes is covered by the same meaning configuration (although in both cases there are reflexes with problematic semantic developments viz. Tetun *oan*, Toba Batak and Tondano *uraŋ*, Sangirese *tuhaŋ*). As for the initial **t* in **tuRaŋ*, Blust (1979:228) points out that PMP had a referentiality-marking prefix **t-* which is still found – mainly in fossilised form – in kinship terms in the Malayo-Polynesian daughter languages. The referential value of kinship terms reflecting **t-* is often lost. I assume that Blust's **tuRaŋ* was a referential form **t-uRaŋ* used for outsiders who became accepted to one's kin group through marriage or friendship, and that it was derived from a PMP **uRaŋ* which I tentatively gloss 'outsider; affine; friend'. The referential connotation was clearly lost in Oceanic and in the Northern Batak subgroup.

POSTSCRIPT

Terms for 'person' or 'human being' are also often used for '(house)post', 'pole' and 'mast'. Brandes (1884:120) first showed a relation between these notions by pointing out that parallel semantic configurations were found in the following cognate sets:

Tagalog, Bisaya *haligi*, Buli *arihi*, Ngaju Dayak *jihi*, Buginese *aliri* 'pole, post', Malay *diri* 'stand; oneself' (cf. PMP **haDiRi* 'stand; person; self');

Malay *tiaŋ* 'pole, post', High Javanese *tiaŋ* 'person';

Malay *oraŋ* 'person', Ngaju Dayak *owaŋ* 'post, pole'.

However, Ngaju Dayak *owaŋ* does not reflect PMP **R* (which should have become *h* in Ngaju Dayak) and its meaning is actually 'piece of wood cut out of a tree or out of other wood' (Hardeland 1859). A relation with Malay *oraŋ* is very doubtful.

Another use of the term for 'human' is as a first person pronoun. Compare Sundanese *uraŋ* '(1st p.pl.incl.)'; Javanese (polite language) *ŋ/hulun*, Achehnese *lōn* 'I' (cf. Achehnese

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32 Except for Western Bukidnon Manobo *e-nugaŋ*, the Philippine reflexes agree in having a *ka-an* derivation for 'parent-in-law' and a *maN-* derivation for 'child-in-law'. In agreement with the semantics of their affixes, the *ka-an* derivations literally mean 'someone with the nature of *(*tuRaŋ)*, and the *maN-* derivations literally mean 'become/take on *(*tuRaŋ)*'.

ulōn 'servant'; High Javanese *tiyaŋ* 'person; I', High Balinese *tiyaŋ* 'I'; Salako, Kendayan *diri?* '(1st p.pl.incl.)' (cf. Malay *diri* 'self' and *bər-diri* 'to stand' < PMP **DiRi* 'self; person; to stand'). The use of Javanese *ŋ/hulun* and Achehnese *lōn* for the first person singular is a consequence of the habit of using terms for 'slave' or 'servant' to refer to oneself in polite language (cf. Malay *sahaya* and High Javanese *kawula* 'slave; I [= your slave]').

LIST OF LANGUAGE SOURCES

Unless otherwise mentioned, the following language sources were used in this paper:

Acehnese: Kreemer (1931)
Alas Batak: Osra et al. (1985)
Balinese: I. A. Mediani (pers.comm.)
Banjarese Malay: Abdul Jebar Hapip (1977)
Bare'e: Adriani (1928)
Bontok: Reid (1976)
Buginese: Sirk (1979), Mills (1975)
Buru: Grimes (1991)
Cam: Moussay (1971)
Cebuano: Wolff (1972)
Dairi Batak: Tindi Radja Manik (1977)
Gayo: Soravia (1984)
Ilokano: Constantino (1971)
Isneg: Vanoverbergh (1972)
Jakarta Malay: Abdul Chaer Mad'ie (1976)
Jarai: Lafont (1968)
Javanese: Gericke and Roorda (1901)
Kankanay: Vanoverbergh (1933)
Karo Batak: Neumann (1951)
Kayan: Southwell (1990)
Kei: Barraud (1979)
Kendayan: Adelaar (unpubl. fieldnotes)
Lampung: Walker (1976)
Maanyan: Dahl (1951)
Madurese: Penninga and Hendriks (1937)
Malagasy: Dahl (1951)
Malay: Wilkinson (1959)
Minangkabau: Moussay (1981), Van der Toorn (1891)
Ngaju Dayak: Hardeland (1858, 1859)
Nias: Sundermann (1913)
Old Javanese: Zoetmulder (1982, 1983)
Proto Austronesian: as indicated in text
Proto Malayic (PM): Adelaar (1992)
Proto Malayo-Javanic (PMJ): Nothofer (1975)
Proto Malayo-Polynesian (PMP): as indicated in text
Proto Western Malayo-Polynesian (PWMP): as indicated in text
Proto Minahasan: Sneddon (1978)
Proto Philippines: Zorc (1977)
Proto South Sulawesi (PSS): Mills (1975, 1981)
Rejang: McGinn (1982), Jaspan (1984)
Rhade: Tharp and Y-Bham Buon-Ya (1980)
Salako: Adelaar (unpubl. fieldnotes)
Sangirese: Steller and Aebersold (1959)
Seraway ("Middle Malay"): Helfrich (1904)
Sichule: Kähler (1955)
Sikka: Arndt (1933)
South Sulawesi: Mills (1975, 1981)
Sundanese: Kats and Soeriadiradja (1933)
Tagalog: Schachter and Otanes (1972), Foley (1976), Panganiban (1980)
Tana Ai (East Flores): Lewis (1988)
Tetun: Morris (1984)
Toba Batak: Van der Tuuk (1971), Warneck (1977)
Tondano: Wantalangi et al. (1985)
Urak Lawoi' Malay: Hogan (1988)
Yamdena (Tanimbar): Drabbe (1932b)

Adelaar, K.A. "The history of thing, animal, person and related concepts in Malay". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*. **C-127:1-20**. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.1*

NEW WORDS FOR A NEW WORLD

BRUCE BIGGS

1. INTRODUCTION

This paper looks at one language's response to a new and unfamiliar environment. It considers aspects of environment and culture that did not change very substantially, and also dramatically changed aspects (including total absence of old features), and for each case considers the lexical developments that followed. Most of the data I have used come from the POLLEX file.[1]

Change in the environment forces change of culture and, presumably, language. I will look at the vocabulary of canoe culture (which persisted in New Zealand) and coconut culture (which was lost).

New Zealand would seem to provide a laboratory for the study of lexical innovation and change. It was settled a thousand years ago, possibly by a single canoe, and, for eight hundred years was, as far as we know, not in contact with any other language. Importantly, dictionary resources for New Zealand Maori are excellent.[2]

The first settlers faced an environment that was very different from the homeland. The first settlers came from a small, tropical island, of restricted flora and land fauna, to a large, temperate mainland where the familiar flora was replaced by the strange and luxuriant diversity of the New Zealand bush. The New Zealand avifauna was also more plentiful than that of Eastern Polynesia. On the coast a great tidal range replaced the two or three foot tides of lower latitudes resulting in enriched inter-tidal fauna. Sea mammals, including large seal rookeries, were common and beachings of whale pods were frequent.

The geographical and climatic environment was very different. They came from a cluster of small islands to a mainland with lakes, large rivers, snow-capped mountains and active volcanoes, none of which featured in the homeland.

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1 POLLEX is an ongoing research programme whose aims include the detailed reconstruction of the lexicons of Proto Polynesian and its subgroups. A number of people have contributed to POLLEX over the years. Those active at present are Bruce Biggs, Ross Clark and Peter Ranby. The POLLEX file now contains about 4,000 reconstructions. The material contained may be quoted or used for research purposes but as the file is being revised and added to continually, all acknowledgments should indicate the date of the electronic copy or printout that is being quoted. Correspondence re POLLEX may be addressed to Bruce Biggs, Maori Studies Department, University of Auckland, Private Bag, Auckland, New Zealand.

2 The main dictionary is Williams's *Dictionary of the Maori language*, the first edition of which, by William Williams, was completed by 1838, though it was not published until 1844. Six subsequent editions by the son and grandson of the original author and then by Maori committees have greatly enlarged the original, although post-contact borrowings from English and other languages are still excluded.

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 21-29.
Pacific Linguistics, C-127, 1994.

We speak of reducing a language to writing. The task facing the Maori ancestors was that of reducing a new environment to language, by naming its features. One can think of a number of ways of going about this, including: (1) coining new words, (2) assigning new meanings to old words, and (3) borrowing words from other languages.

Choice (3), the preferred method for most modern languages, English in particular, was ruled out, because there were no other languages to borrow from.

Choice (1) is, I suspect, relatively uncommon, especially ab initio. The word 'gas' was 'invented' by the chemist Van Helmont but was suggested by Latin *chaos* or Greek *khaos*. The word 'quark' looks like an invention and perhaps it is. It first occurs in James Joyce's *Finnegans wake* (1939).

There are a lot of Maori words without etymologies but, except for a few onomatopoeic items such as *korukoru* 'turkey', it is difficult to show that any of them were invented. Tahitian contains many lexical innovations, including items of basic vocabulary, but it seems that they are generally semantic modifications of existing words, or borrowings from neighbouring Polynesian languages such as Marquesan. The unfamiliar vocabulary found in Tuamotuan is probably to be explained similarly.

However, coined words have become quite common in English with the current fad for lexicalising acronyms. Computerese provides many examples (ascii, ebcdic, fifo, and my favourite, wysiwyg). Computers make it easy to generate all acceptable words in a language; you can then assign meanings to shapes that are unused. Cleve Barlow recently made use of this device to coin linguistic terminology for Maori.[3]

Choice (2), assigning new meanings to old words, was widely used by the Maori ancestors. I have discussed in some detail its application to plant terminology in other papers.[4]

A variation on Choice (2) occurs when a qualifier is added to an existing term. White colonists practised this in New Zealand (e.g. White Pine, New Zealand Honeysuckle, Long-tailed Cuckoo). The physicists, with their rapidly changing theoretical environment, now have up quarks, down quarks, strange quarks, top quarks and bottom quarks.

The Maori ancestors used this device extensively. The name of the Beach Hibiscus of Polynesia (PCE **fau*)[5] was used in New Zealand with appropriate epithets, to name several new trees, *whau-ama* 'ourigger **fau*', **hou-here* 'tying **fau*', *hou-para* 'rubbishy **fau*', *whau-paku* 'small **fau*'.

Pandanus (**fara*) does not grow in New Zealand but plants with similarly elongate leaves were named *whara-riki* 'little **fara*', *whara-nui* 'big **fara*', *hara-keke* '? strong **fara*'.

Polynesian also had at least two grammatical devices to apply to this kind of innovation, reduplication, and prefixation of *poo-* or *koo-*, both of which seem to have had the meaning 'pseudo' or '-like'. New Zealand's first settlers made extensive use of them, sometimes in combination.

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3 Biggs (1990c, trans. Barlow).

4 See Biggs (1990b, 1991).

5 As the first settlers were from the Cook Islands or French Polynesia, all my starred forms are as reconstructed for Proto Central Eastern Polynesian (PCE) unless otherwise noted.

(Koo)wharawhara '*Collospermum* sp.', *kohekohe* ('*Dysoxylum* sp.' < **kofe* 'bamboo'), **koo-hutuhutu* ('New Zealand fuchsia' < **futu* '*Barringtonia*'), *koo-kihi* ('New Zealand spinach' < **kisi* '*Oxalis* sp.').

2. THE SAME BUT DIFFERENT

Any migration will present the migrants with new features that are similar to but not identical with things at home. An unmodified name will often be used in such cases. The oysters of New Zealand were sufficiently like the oysters of tropical Polynesia to be given the unmodified designation of *tio* < **tio*.

If the new environment is less diverse than the old, some of the old vocabulary may be discarded and lost. If it is richer, however, the old vocabulary may prove insufficient.

The history of Polynesian plant names provides an interesting case. The Fiji, Samoa, Tonga region has a rich flora. Somewhere in this area was the homeland in which the Proto Polynesian language was spoken and we may be sure that the Proto Polynesians had a vocabulary matching the richness of their environment. More than 180 Polynesian plant names have been reconstructed.

As the ancestors moved eastwards across Polynesia the flora had became ever sparser in the sense that there were fewer different species. But those that were found in the eastern islands were, for the most part, the same as, or similar to those already known and the nomenclature was to hand. In the new environment fewer plant names were needed and the names for plants not found were finally forgotten.[6]

When the Eastern Polynesian discoverers reached New Zealand they entered once more a region of floral diversity whose richness was matched only by its unfamiliarity. Now their botanical nomenclature was unable to provide names for all the new plants they encountered. Nevertheless they appear not to have used all of the names that were available. Similarity of form or use seems to have been required before an old name was applied to a new plant.[7]

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6 Proto Polynesian plant names not found in Eastern Polynesia or New Zealand include PPN **aŋo* '(*Curcuma* sp.)', **ate* 'a shrub (*Wedelia* sp.)', **atiu* 'a vine (*Cucumis* sp.)', **faatai* 'a parasitic creeper (*Cassytha filiformis*)', **fau-qiŋo* 'a plant (*Hibiscus* sp.)', **fesi* '(*Intsia bijuga*)', **fetaqu* '(*Calophyllum* sp.)', **filimoto* 'a tree (*Flacourtia* sp.)', **fiso* '(*Saccharum* sp.)', **kalaqapusi* '(*Acalypha grandis*)', **kanume* **kanume* 'a tree (*Diospyrus* sp.)', **kawa-sasa* 'a creeper used to poison fish', **laŋa-kali* 'a tree (*Aglaia* sp.), **lekileki* 'Puzzlenut (*Xylocarpus* sp.)', **loŋoloŋo* 'a palm (*Cycas circinalis*),**makari* 'a tree', **maalili* 'a tree (*Terminalia* sp.)', **mana-ui* 'a tree', **mapa* 'a tree (*Diospyrus* sp.)', **mata-moso* 'a plant with red seeds', **mosokoi* 'a tree (*Canga odorata*), the tree and name have been imported into Rarotonga', **natu* 'a tree (*Burckella obovata*)', **ŋasu* '(*Scaevola* sp.)', **ola* 'a shrub', **pau* 'a tree', **pipi* '(*Hernandia* sp.)', **saakato* 'fern sp.', **salato* 'tree nettle '(*Laportea harveyi*)', **sana* 'Job's Tears '(*Coix* sp.)', **taka-taka* 'a grass', **tama-tama* 'a plant', **tane-tane* 'a shrub', **tapu-toki* 'a tree (*Alectryon* sp.)' **tata-ŋia* 'a tree (*Acacia* sp.)' **timo* '(*Curcuma* sp.)', **tono* '(*Centella asiatica*'), **waalai* 'a liana'.

7 Plant names from Eastern Polynesia with no reflexes in New Zealand include: PPN **alo-alo* 'a tree (*Premna* sp.)', PPN **fano.4* 'a tree (*Guettardia speciosa*)', PEO **fao.1* 'a tree (*Ochrosia* sp.)', PPN **kakamika* 'shrub sp. (? *Ageratum* sp.)', PN **kape.1* 'a plant (*Alocasia macrorrhiza*)', OC **kaute* 'a flowering shrub (*Hibiscus rosa sinensis*)', AN **lala.1* 'tree (*Vitex* sp.)', PN **mala.1* 'tree sp.', PN **maaŋele* 'a tree (*Trema* sp.)', PN **mutie* 'grass sp.', FJ *nuka-nuka* 'a shrub (*Decaspermum* sp.)', PN **ŋase* 'plant sp.', PN **ŋatae* 'tree sp. (*Erythrina indica*)', PN **ŋiŋie* 'coastal shrub sp. (*Pemphis acidula*), CP *qaoa* 'Banyan tree (*Ficus* sp.)', PN **sea.1* 'a tree (*Parinarium insularum*)', PN **siapo* 'Paper Mulberry plant (*Broussonetia* sp.); bark-cloth', AN *talie.1* 'a tree (*Terminalia* sp.)', FJ *tamanu* 'a tree (*Calophyllum* sp.)', PN **tamole* 'a fragrant plant (*Portulaca* sp.)', PNP **tau-sunu* 'tree heliotrope (*Tournefortia argentea*)', PN **toi.1* 'tree sp., (*Alphitonia zizyphoides*)', PN **toto.2* 'a tree (*Euphorbia*

Of 183 Proto Polynesian plant names 45 are not found in Eastern Polynesia. Of the 136 found in Eastern Polynesian languages two-thirds (86) have reflexes in Maori. A very few (5) apparent Maori reflexes are otherwise unattested for Eastern Polynesia. Perhaps the most interesting of these is *pere* 'a shrub (*Alseuosmia* sp.)' < PPN **pele* 'a shrub with edible leaves (*Hibiscus manihot*)' which is absent from the eastern islands.

The Maori ancestors often modified old names, either grammatically or by qualifiers, and the same old name was sometimes assigned to several new species. **Maire*, either alone or with a descriptive epithet, denotes at least six different plant species (in some cases species of different genera) in New Zealand Maori. In this extreme case either one of two features of the original plant (perfumed leaves or leaf shape) appears to have motivated the application of the name.

Descriptive phrases were sometimes used to name unfamiliar plants, such as *waewae-koukou* 'owl's foot' and *ahi-koomau* 'fire retained' (a tree whose wood was used to make fire), and **huruhuru-o-Hine-nui-i-te-poo* 'pubic hair of the goddess of death' (a spiny herb).

I have not estimated how many plant species were named in New Zealand, but a count of the entries under a plant, a tree, a fern, a grass, a shrub, in Biggs (1990a) was well over 700.

3. QUITE DIFFERENT

In New Zealand some aspects of the physical environment were new to the founding population. Hills (**puke*) and mountains (**maunga*) were familiar and required no lexical adjustments, but the frost and snow that sometimes capped them was not. It was natural to call these new features *huka-papa* 'flat foam' and *huka-rere* 'flying foam'.

After leaving the Western Polynesian homeland the Eastern Polynesians had lived in an environment relatively free of seismic disturbance. By migrating to New Zealand's shaky isles they had once more entered the ring of fire, where thermal sites, including active volcanoes, littered the landscape and earthquakes were frequent.

The name of the earthquake god **Mafuike* had been retained in Eastern Polynesia, but in the absence of earthquakes he had become *Mahuika*, the god of fire. A new earthquake god, *Ruaumoko*, or *Ruai-mokoroa*, was created in New Zealand. Significantly, he is the youngest of the 70 sons of Rangi and Papa, still at the breast when the sky father and earth mother were forced apart.

The Maori vocabulary of seismic activity was never very great, but it was all innovated in New Zealand: *huu* 'to erupt (of a volcano)' < **suu* 'to fart'; *ruu* 'to quake (of the earth)' < **luu* 'shake'; *puia* 'geyser'< **puqi* 'to smell (intr.)'; *ngaawhaa* 'boiling spring, sulphur' < **ngafaa* 'burst, break open (intr.)'; *rangitoto* 'cinder, scoria' < **rangi* 'sky', **toto* 'blood'; *wai-ariki* 'thermal bath, spring' < **wai* 'water', **ariki* 'chief'.

Lakes and large rivers were non-existent in the Eastern Polynesian homeland and the old word (PPN **lano*) for the lakes of Western Polynesia had been lost. But enclosed bodies of water were familiar, so **roto* 'lagoon' became 'lake', or, in those areas of New Zealand without lakes, 'swamp'. The largest lakes were dignified as *moana* 'sea'. For the large New

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sp.)', PN **tou.1* 'a tree (*Cordia* sp.)', PN **usi.2* 'a shrub (*Evodia* sp.)', PN **wawai* 'plant sp. (perhaps *Gossypium* sp.); cotton'.

Zealand rivers **wai-tafe* 'river, stream' < **wai* 'water', **tafe* 'flow' was replaced by *awa* < **awa* 'channel, reef pass'. 'River estuary' was added to the reference of **faŋa* 'bay'.

4. DIRECTIONS

In a discussion of "the four cardinal directions, north, south, east and west" Cecil H. Brown (1982:1) points out that "careful comparative study...reveals little basis for proposing any great antiquity for any cardinal direction term". No cardinal directions have been reconstructed for Proto Austronesian, for example.

Most discussion of compass direction starts with the assumption that the 360 degrees of the horizontal plane will be divided equally into four parts. But why must it be four? It does seem natural for each direction to have a reciprocal, so five or seven directional terms would be unlikely,[8] but why not six, or just two? And if more than two, why must the subtended sectors be equal?

A minimum of two directions might be expected. The rising and setting of the sun in relatively fixed positions is pretty striking, and in fact, when we examine the reconstructed Polynesian glosses we find just two that refer unequivocally to compass direction, 'east' **sasake*, and 'west' **hihifo*, and **lalo*. The first two terms may be related to **hake* 'upwards' and **hifo* 'downwards'.[9] But neither **sasake* nor **hihifo* is reflected in any Eastern Polynesian language. Moreover, the terms are confined to Metro-Polynesia and may have been innovated in that area, as Brown has suggested.[10] As for **lalo* < PMP **dalem* 'inneres, tiefe', it is literally 'downwards' in Polynesian (? downwind, down to the underworld (spirits of the dead go westwards), down where the sun goes).

'East' and 'west' have not been reconstructed for Eastern Polynesian. On islands, the so-called cardinal directions are hardly necessary, as those who live in Honolulu know. Locations and directions there are indicated by the terms *mauka* < **ma uta* 'towards the centre of the island', *makai* < **ma tai* 'towards the sea', *Ewa* 'towards Pearl Harbour' and *Diamond Head* 'towards Diamond Head'.[11]

It is possible that in spite of their vaunted navigational skills (as opposed to their voyaging capabilities, which are unquestioned) Polynesians had no fixed-point cardinal directions. After all, their universe lacked such: as you move round on a small island your orientation is constantly changing; the sun moves across 47 degrees of horizon between the summer and winter solstices; and, in the absence of a south polar star, there is no fixed point in the southern night sky.

The Polynesian navigators may have had no abstract geographical model at all, but used a dead reckoning navigational system that relied solely on such concrete phenomena as winds, wave patterns, horizon stars, zenith stars and the path of the sun.

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8 But Andrew Pawley tells me that the Kalam of the Kaironk Valley (Western Highlands, Papua New Guinea), have just three directions, up-valley, down-valley and cross-valley.

9 Brown relates these terms to the rising (up) and the setting (down) of the sun. I have always felt that for Polynesia and Fiji they refer conceptually to 'upwind' and 'downwind'.

10 Brown (1982:21, fn.4).

11 It is interesting to consider what happens to this general Polynesian system when the land is a *motu* on a ring atoll. I have not found a good description of such a situation but note that in Kapingamarangi *dai* is 'lagoonwards' and in Tokelau *uta* refers to 'the islets on the far side of the lagoon'.

Except for **sasake* and **hihifo*, all reconstructions that contain cardinal directions in their glosses were probably wind names rather than directions. The winds that concern Polynesians who live south of the equator are the prevailing trade winds from the south-easterly quarter and the storm winds from the north-westerly quarter. The higher level reconstructions in POLLEX are PNP **(faka)tiu* 'wind from a westerly quarter'; PPN **toŋa* 'south wind'; PPN **laki* 'the westerly quarter; wind from that quarter and weather associated with it'; PPN **tokelau* 'wind from a northerly quarter'. At a lower level we have PCE **uru* 'wind from a westerly quarter'; PCE **malaŋai* 'wind from a south-easterly quarter (the trade wind)'.

In New Zealand, a country of strong winds, predominantly from the westerly quarter, but with no seasonal regularity, reflexes of all of these wind names have been retained, but with some semantic changes. On a long narrow land, lying approximately at right angles to the path of the sun, compass direction became more salient than wind direction, and approximated the Western model: *raki* came to mean the direction 'north'; *uru* became 'west' (and the west wind became *hau-aa-uru* 'wind of the west'); *marangai* became 'rain bearing wind' (which varied from district to district), 'east, east wind', 'north, north wind' and, in one dialect, 'rain'; and *tonga* became 'south, south wind'. 'East' for which no proto-eastern reconstruction can be determined, is Maori *raa-whiti* < *raa* 'sun' + *whiti* 'spring up' (cf. Hawaiian *hikina*). *Tokerau* became a district in the north-east of the country, losing its directional reference. In addition, and in accordance with an almost universal metaphor, the words for 'above' and 'below' were applied to direction, but with an unusual twist: 'north' is 'below' (*raro)* and 'south' is 'above' (*runga*).

For the inhabitants of isolated islands the sea is the sea. For mainland dwellers things are different. The sea on different coasts tends to be distinguished terminologically. In New Zealand four seas, matching the four winds) were *Te Tai Tonga* 'the southern sea', *Te Tai-raawhiti* 'the eastern sea (sea of the risen sun)', *Te Tai hau-a-uru* 'the sea of the west wind' and *Te Tai Tokerau* 'the north-east sea'.

5. CANOE CULTURE

The difference between the sea and land environments of Polynesia and New Zealand gave rise, over a period of time, to quite marked changes in material culture. Take canoes, for example.

The geography of Polynesia, small islands or archipelagoes separated by hundreds of kilometres of open sea, all set in low latitudes subject to the trade winds, provided a celestial, climatic and geographical environment suitable for, and providing, an incentive to develop or extend an ocean-voyaging capability.

Ocean-going canoes had to rely on sailing rather than paddling because human metabolism does not allow for long man-powered voyages. They had to survive heavy seas, so the hulls were fashioned with tumblehome and were decked over. They resembled slit cylinders rather than open boats.

Two-way sailing requires an ability to beat into the wind, which in turn requires lateral stability of the craft. So the favoured vessel of Polynesia was a sailing canoe which was given the required stability by having two hulls or an outrigger.

New Zealand is situated in higher latitudes outside the range of the trade winds and in the unpredictable climate and stormy seas of the roaring forties. It is isolated from all other land. There is, in effect, nowhere else to go, so ocean voyaging ceased and navigational expertise was lost. Maori astronomical belief, for example, was entirely concerned with measuring the seasons and 'predicting' weather, and not at all with direction finding.

The effect of all this on boat-building and voyaging was profound. Vessels were now paddled rather than sailed, because human paddlers were able to power craft among New Zealand's closely clustered islands. Moreover, much of the travelling by canoes was now on long, navigable (but narrow) rivers, where sailing was impracticable[12] and narrow beam an advantage. Lateral stability was no longer required, so outriggers and catamarans were gradually abandoned.[13] The enormous softwood trees of New Zealand allowed the dubbing-out of very large dugouts which reduced the need for tumblehome and decking. (The New Zealand sourced outriggers and foredecks and at least one hull exhibiting tumblehome are all ancient pieces from swamp deposits surviving from an era before these changes had been made.)

What of the vocabulary of canoe culture? Was it retained or lost? Well, of 13 words which were almost certainly in the vocabulary of the Maori ancestors, 12 were retained but, as in the case of plant vocabulary, sometimes with altered meanings.

The words for stern (**noko*), topstrakes (**oa*), paddle (**foe*), keel (**takere*), bilge (**riu)* and canoe itself (**waka*) were all retained, with unchanged meanings. So was **saumi* 'forward section of canoe hull' and **taumua* 'prow' though this was more usually called *ihu* < **isu* 'nose'.

In Polynesia **kiato* refers to the booms that secure the outrigger to the canoe. In New Zealand the word refers to the thwarts that spread and stabilised the topstrakes that were a prominent feature of the new canoe architecture. A New Zealand innovation for topstrake was *rauawa* a multi-morphemic form whose derivation is unclear.

The word for outrigger (**ama*) is interesting. By the end of the eighteenth century outriggers were rare in New Zealand. Outrigger canoes were seen on Cook's voyages to the North and South Islands (Best 1925b:15), and Te Whatahoro is said to have travelled on one in 1853 (ibid). But Polack, who travelled extensively in the north of the North Island in 1814, said, "Outriggers...are unknown in New Zealand" (Best 1925b:17), and this seems to have been generally true by the nineteenth century.

Ama first appeared in Williams's Maori dictionary (3rd edn, 1871) glossed as "outrigger on the windward side of the canoe" and this meaning seems to have been accepted by Maori ethnographers. But Colenso (1898:35) glosses *ama* as "the covered or decked forepart of a canoe; the stage or platform between two canoes joined together" and Williams's 4th edition (1892) adds "thwart of a canoe" to its earlier definition.

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12 "They can only sail before the wind, in which direction they move with considerable swiftness" (Summary, Cook's first voyage, quoted in Best 1925b:9); "Their sail, very seldom used, is a mat formed in a triangular shape" (Furneaux (1773), quoted in Best 1925b:10).

13 "Cook and his companions mention but one double canoe as having been seen (in 1769) on the coast of the North Island, while they saw a considerable number in the south" (Best 1925b:12). Polack, who lived for seven years in the north in the 1830s, said "Canoes are very rarely lashed together; during my seven years' acquaintance with the country I never saw a single instance of the kind" (quoted in Best 1925b:11).

A search for textual examples of the word yielded the following:

(1) *'Hei roto koe, hei te ama o to taaua waka.' Ka tomo ki roto, kaatahi ka peehia e Maaui te ama, me te waka katoa ki runga ki a ia, aa, ka mate a Irawaru.* 'You go within, into the *ama* of our canoe.' He went in and then Maaui pressed down the *ama*, and the whole canoe on top of him and Irawaru died. (Grey 1928:14)

(2) *Koia ia te ama, ko taua mea o waenganui o nga waka.* That is the *ama*, the thing in the middle of the two canoes. (Colenso 1898:35)

(3) *He ama anoo te waka, araa, he waka iti nei hei aarai i te ngaru.* The canoe had an *ama*, that is a small canoe to block the waves. (Jones n.d.)

None of these examples indicate clearly that 'outrigger' was meant by *ama* and it seems that the nineteenth century Maori, while remembering the word, was uncertain about its meaning.

**Katea* 'side of canoe opposite outrigger' was the single item of reconstructed canoe culture vocabulary that was lost. In New Zealand, with the decline and eventual abandonment of outriggers, it no longer had a referent.

6. WEAPONS AND WARFARE

At some time in New Zealand's past, warfare became culturally prominent. It was based on vendettas maintained over generations, and featured cannibalism and desecration of the enemy dead. The use of missile weapons became rare. The sling, a weapon throughout tropical Polynesia, was not used at all in New Zealand. It has been pointed out that if you wish to secure the body of your enemy, for whatever reason, there is little point in killing him at a distance. Hand-to-hand fighting and skilled weapon-play was favoured.

Weapons unique to New Zealand were developed and their nomenclature is interesting. The names were usually multi-morphemic but with puzzling derivations. *Koti-ate* (*koti* 'cut off', *ate* 'liver') 'a broad-headed short club with a slit-like notch in each side'. The function of these notches is unknown. A suggestion that they were used in a complicated method of emasculation would appear to stretch the imagination somewhat, not to mention the sexual anatomy of the victim.

Other examples were *waha-ika* (*waha* 'mouth', *ika* 'fish') 'a short bill-hook shaped club', *tewhatewha* (*tewha* 'garrulous') 'a long axe-like club', *taiaha* 'a long and narrow, flat-bladed club or quarter-staff', *hoeroa* (*hoe* 'paddle', *roa* 'long') 'a long, double-curved club, often made from a whale rib'.

The vendetta itself developed a special vocabulary concerned with the obligation of settling an unavenged death. While the death remained unavenged it was said to be *ngaro* 'out of sight, hidden'.[14] To avenge a death was to bring it back into view. The appropriate words to use were *ranga-a* 'to lever up', *ngaki* 'to clear ground of weeds, etc.', *huke* 'to expose, open (of an earth-oven)', *takitaki* 'to appear'. When revenge had been taken the death was said to be *ea*, an intransitive verb whose literal meaning was 'to appear above water (after a dive)'.

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[14] My younger son is named *Mate-ngaro* 'unavenged death' after my wife's father, who was named after his grandfather. We don't know whose death was unavenged but as my grandson now bears the name, that, at least, persists.

7. THE LOSS OF COCONUT CULTURE

What must have seemed a dramatic, even catastrophic difference from the home environment was the complete absence of the coconut palm, ubiquitous in Polynesia and of great economic importance there.

What happened to the rich terminology of coconut culture? Was it lost in New Zealand or retained with other meanings?

Of 32 pertinent Proto Polynesian reconstructions three-quarters have reflexes in Eastern Polynesia where, in this respect, the environment was little changed. Proto Polynesian terms not reflected in PCE are PPN **faaŋoŋo* 'half coconut shell', **mataqali* 'prematurely fallen nut', **palalafa* 'butt end of coconut frond midrib', **quuquu* 'Coconut Crab (*Birgus latro*)', **tola(u)* 'central, unopened leaf shoot'. Of the 25 Central Eastern Polynesian terms pertaining specifically to coconut culture only half have reflexes in Maori.

Examples of words that were present in Central Eastern Polynesian but have dropped out of Maori are **tuai* 'grater for coconut meat', **rooroo* 'spathe of coconut', **taume* 'spadix of coconut', **uto* 'sprouting coconut and the spongy pulp it contains'.

Examples of words retained with innovated meanings in Maori are: **niu* 'coconut' > 'a divining wand'; **kaka* 'the fibrous mat round the base of coconut fronds' > 'fibre, especially that found in edible bracken fern root'; **kaalawa* 'the very strong fibre obtained from the outer skin of the coconut frond midrib' > 'a flax line with nooses for bird-snaring'; **niikau* 'coconut frond' > 'the New Zealand palm most similar to the coconut palm, but without edible fruit'; **pulu* 'coconut husk' > 'plug, cork, bung, to caulk, stuff up'; **sakali* 'mature coconut' > 'feast, fish roe, egg yolk'; and **tafaa* 'coconut shell water-bottle' > 'calabash made from a gourd'.

AUSTRONESIAN SIBLING TERMS AND CULTURE HISTORY

ROBERT BLUST

1. INTRODUCTION[1]

Proto Malayo-Polynesian (PMP), the hypothetical ancestor of all non-Formosan Austronesian languages, had four sibling terms: (1) ***betaw***, (2) ***ñaRa***, (3) ***kaka/aka***, and (4) ***huaji***. The first two terms referred to female and male cross-siblings respectively. The last two referred to elder and younger siblings, possibly only those of the same sex. In addition, there is widespread evidence of historically secondary morphemes meaning 'female/male' or 'female/male child' which replaced the original cross-sibling terms in many languages independently (the 'cross-sibling substitution drifts'). The unambiguous presence of a cross/parallel distinction in the sibling terminology is culturally significant, as it correlates statistically in synchronic data samples with the presence of descent groups, and in particular with matrilineal descent. The 'cross-sibling substitution drifts' have even greater cultural significance, as they are enigmatic unless we assume that PMP speakers practised some form of asymmetric exchange which persisted in many of its descendant communities until the terms for wife-giving and wife-taking groups had been transferred to the male and female cross-siblings respectively. Asymmetric systems of marital alliance survived into the ethnographic present primarily in Sumatra and eastern Indonesia, but were transformed in various ways in virtually all other Austronesian-speaking societies. More generally, in the area of general ethnological method and theory this paper takes issue with several widely-shared assumptions about necessary and sufficient conditions for historical reconstruction, and describes the first reported instance of a linguistic drift that is powered not by structural pressures in the linguistic system, but rather by structural pressures in the system of social organisation.

1.1 THE PROBLEM

Although language families such as Indo-European and Sino-Tibetan have more speakers, Austronesian (along with Niger-Kordofanian) is one of the world's two largest language families in number of languages (Ruhlen 1987).[2] These languages have a wide geographical distribution in Taiwan, the Philippines, Malaysia, Indonesia, portions of mainland Southeast Asia, Madagascar and a variety of Pacific nations located within the broad geographical

1 I am indebted to Alice Dewey, Gregory Forth, Rodney Needham and Andrew Pawley for critical comments which led to improvements in an earlier version of this paper. Needless to say, none of these scholars necessarily accepts my premises, methods, arguments or conclusions.

2 Ruhlen (1987) recognises 1,064 Niger-Kordofanian and 959 Austronesian languages. Needless to say, these numbers are meaningful only to the extent that a common definition of 'language' and 'dialect' is uniformly applied.

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Pacific Linguistics, C-127, 1994.

regions of Melanesia, Micronesia and Polynesia. As with any large and widely distributed collection of languages or cultures, there is a great deal of linguistic and cultural diversity among the Austronesian-speaking peoples. Since they reflect a common ancestral tradition the differences among these various languages and cultures must have arisen through an accumulation of gradual linguistic and cultural changes over many generations. It is the task of the comparative linguist to reconstruct as much as can be recovered of the language which existed before these changes. Because language and culture are interconnected in sometimes surprising and unexpected ways, the reconstruction of particular linguistic features may, under favourable circumstances, also entail the reconstruction of interconnected features of culture.

Somewhat over a decade ago on the basis of comparative linguistic evidence I argued that early Austronesian (AN) society had ancestor-oriented kin groups (descent groups), matrilateral cross-cousin marriage (hereafter simply 'matrilateral cousin marriage'), dual divisions and some kind of quadripartite social organisation (Blust 1980b). This point of view was contrary to one expressed in Murdock (1949), but agreed closely with certain features of the reconstruction of "ancient Indonesian" social organisation proposed in 1935 by the Dutch ethnologist F.A.E. van Wouden in a thesis written under the supervision of J.P.B. de Josselin de Jong.[3]

The anthropological debate into which I as a linguist to some extent unwittingly thrust myself is of greater than ordinary interest for at least three reasons. Firstly, Murdock's ideas on early Austronesian social organisation were one of many spin-offs from his worldwide study of the typology of kinship systems. Even in 1980, over 30 years after they were first expressed, his historical reconstructions of social organisation and change for particular language families remained perhaps better grounded in general ethnological theory than those undertaken by any other contemporary anthropologist. Secondly, the close similarity of my inferences from the linguistic evidence with many (not all) of those expressed by van Wouden was arrived at quite independently, and at a time when the pioneering work of this Dutch scholar was being vigorously re-examined both for its importance and for its shortcomings (Fox, ed. 1980). Thirdly, this disagreement over the narrow details of early Austronesian social organisation can be seen as a test of the larger issue whether ethnology has a comparative method of the same order of reliability as the comparative method of historical linguistics. Indeed, with reference to his "technique of historical reconstruction" Murdock (1949:349) believed that "the most striking confirmation of the method comes from the Malayo-Polynesian stock".

The evidence that I cited in support of my position in 1980 was of varying value, but central to my line of reasoning (especially as expressed in my Reply) was the history of sibling terminology in Austronesian languages. It was my position then, and it remains my position today that through a comparative analysis of sibling terms *alone* – without reference to the broader matrix of reconstructed kinship terminology – one can safely reach two

[3] The expression 'early Austronesian' served as a convenient cover term, since the actual reconstructions varied between two non-contemporaneous protolanguages, Proto Austronesian and Proto Malayo-Polynesian, both of which were explicitly indicated in relation to any given protoform. The same convention, with the same provision, is used in this paper. With regard to the expression "ancient Indonesian", van Wouden (1968[1935]:86) himself refers to "exclusive cross-cousin marriage and its organisational correlate" as "an ancient culture-element known to all the peoples in the area". Although he evidently intended this statement to apply only to eastern Indonesia, de Josselin de Jong (1977[1935]:168) called the same features of social organisation "the structural core of numerous ancient Indonesian cultures in many parts of the Archipelago".

conclusions: (1) that speakers of a language ancestral to all non-Formosan Austronesian languages had descent groups, and (2) that within the same language community there was a rule of matrilateral cousin marriage, or on the level of the corporate kin group, what Lévi-Strauss (1969[1949]) has called "generalized exchange" (more commonly known today as 'asymmetric alliance').[4]

The first of these claims is relatively non-controversial, assuming only that the correlations between type of sibling terminology and type of social structure which Murdock (1968) found to be statistically significant in attested societies should also hold in reconstructed prehistoric societies.[5] Being founded on a statistical, rather than a logical argument, its validity is essentially probabilistic. The second, more iconoclastic claim, has emerged from a synthesis of comparative linguistics and elements of kinship theory that is more abstract, and perhaps more difficult to follow. Unlike the first it is founded on a logical argument, and its validity therefore depends on the usual criteria of compatibility with the primary data, and competitive superiority (based on simplicity and independent motivation) which govern the evaluation of inductive arguments in science generally.

To forestall possible misunderstanding at the outset, I wish to emphasise that my inference of PMP asymmetric alliance is based not on an assumed correlation between reconstructed terminology and behaviour, but rather on an assumed correlation between *semantic change* and behaviour. I will distinguish these types of relationship between language and behaviour as 'horizontal' and 'vertical'. The first approach (followed, for example, by Murdock, and used here *only* for my claim of PMP descent groups) is essentially a projection of relationships in a synchronic system onto a reconstructed language. The second approach, which is an essential part of the practice of historical linguistics, has a potential for the solution of diachronic problems in social and cultural anthropology which has never been fully appreciated and has rarely been exploited by anthropologists. Its use is illustrated in, for example, Blust (1986-87) and (1987a).

This paper is devoted to a broad comparative treatment of Austronesian sibling terms, with special reference to what I call 'the cross-sibling substitution drifts'. The problem is complex, and requires the resources both of comparative historical linguistics and of the anthropological study of kinship. For this reason I do not have the luxury of assuming a

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4 James J. Fox (pers.comm.) has taken issue with my use of the expressions *descent group* and *corporate kin group* as interchangeable labels. After some consideration of his objections I fail to see any basis for them (one might quibble similarly with my interchange of 'structure' and 'organisation'). The distinction that I wish to make separates systems of social organisation in which kin group membership is defined by lateral extension from systems of social organisation in which it is defined by common descent from an apical ancestor. It is customary in the anthropological literature to refer to kin groups of the latter type as *descent groups*, and because they persist through time despite changes in their membership they are *corporate*. Ego-centered bilateral kin groups such as Murdock's bilateral kindred cannot be corporate, since their composition varies with each person in relation to whom they are defined. Further distinctions which may be important to the ethnographer (e.g. corporate kin group vs localised corporate kin group) probably are beyond the means of the comparative method of linguistics to reconstruct, but a reconstruction that is less refined than the ethnographer would like is not therefore to be dismissed as worthless.

5 One might, of course, object that the statistical correlations presented by Murdock are themselves suspect, a criticism that has been raised in particular by British scholars (e.g. Leach 1961). However, the objections to Murdock's methods that have been raised to date fail to explain how a compounding of largely random errors could produce consistent patterns of correlation cross-culturally. Like Nerlove and Romney (1967) I take the results of Murdock (1968) as given. While these results themselves may be controversial, the uniformitarian view that statistically significant correlations which hold in modern cultures also held in prehistoric cultures has been to date almost completely free from dissent.

shared intellectual background, as is normally the case when one writes for others in one's own academic discipline. Serious gaps in communication between anthropologists as a group and linguists as a group were painfully obvious in at least one recent attempt by an anthropologist to apply comparative techniques to the reconstruction of kinship systems (Marshall 1984), and I hope by supplying the necessary background to avoid such problems here.

2. ANTHROPOLOGICAL PREREQUISITES

Although some important contributions were made by earlier scholars, it is perhaps fair to say that the anthropological study of kinship received its major initial impetus from the publication of Lewis Henry Morgan's 'Systems of consanguinity and affinity of the human family' (1870). In this work and in his sequel, *Ancient society* (revealingly subtitled *Researches in the lines of human progress from savagery through barbarism to civilization*), Morgan was concerned with developing sociological explanations for the differences between types of terminological systems. Morgan saw a fundamental difference between what he called "classificatory" systems, which he associated with less advanced societies, and "descriptive" systems, which he associated with more advanced (viz. European) societies. Morgan's general evolutionary schema, his arbitrary distinction between classificatory and descriptive systems, and many of his sociological explanations for the composition of kin groups now appear fanciful, but his belief that it is possible to correlate types of terminological systems with underlying social and economic determinants has been shared by subsequent anthropologists, who have developed it in increasingly sophisticated forms.

Kinship theory has taken enormous strides since Morgan's pioneering work, and it would be a daunting task to review even the major contributions here. I touch only briefly on a few points that are particularly relevant to the argument that follows.

2.1 TERMINOLOGY

Kinship relations are commonly expressed by a set of abbreviations which isolate a single, universally definable category in relation to a given individual, designated as Ego. Such universally-defined kin categories are the primitives of kinship theory, since they are independent of the kinship categories of any particular language. When combined to form language-particular configurations which are mapped onto a single morpheme they become genealogical categories, that is, culturally-defined categories of relationship. In the ensuing discussion expressions such as 'both cross-cousin' will refer to primary universal categories unless there is specific indication to the contrary (thus one is justified in speaking of 'both cross-cousins' in symmetric alliance even though there may be a single culturally-recognised category which covers both universal categories). The abbreviations used in this paper for universally-defined kin categories are as follows:

F = father	M = mother
B = brother	Z = sister
S = son	D = daughter
H = husband	W = wife
m = male	f = female
m.s. = man speaking	w.s. = woman speaking
// = same sex (parallel)	x = opposite sex (cross)
e = elder	y = younger
Sb = sibling	

Other kin categories are represented by combinations of these elementary terms: MBD = mother's brother's daughter, FZS = father's sister's son, eSb = elder sibling, xSb = sibling of the opposite sex, etc.

Some other distinctions that will be useful in this paper are:

consanguines: persons related by culturally recognised common descent;

affines: persons related by marriage;

lineal kin: kin related in a direct line, as grandparents, parents and children;

collateral kin: all consanguines other than lineal kin, as uncles and aunts, siblings, cousins, nephews and nieces;

descent group: a group of kin defined in relation to a *common ancestor* – such groups are corporate in the usual sociological sense, that is, they maintain their identity through time despite changes in individual membership;

lineage: the most commonly recognised form of descent group (often a lower-order descent group whose members can trace the links and line of common ancestry, as opposed to the 'clan', where they cannot);

exogamy: a prescribed rule of marriage outside Ego's descent group (marriage within the descent group is culturally-defined incest, whether with a close biological relative or not);

cross-cousin marriage: a culturally expressed preference for a male Ego to marry a woman who belongs to the kin category MBD or FZD. This takes three forms: patrilateral cousin marriage (with FZD), matrilateral cousin marriage (with MBD) and bilateral cousin marriage (with either cross-cousin);

unilineal descent: culturally recognised descent exclusively through one parental line;

patrilineal descent: culturally recognised descent exclusively through the father's line, which may produce patrilineal lineages, or patrilineages;

matrilineal descent: culturally recognised descent exclusively through the mother's line, which may produce matrilineal lineages, or matrilineages;

ambilineal descent: culturally recognised descent through *either* a patrilineage or a matrilineage, dependent upon particular socioeconomic circumstances;

bilateral descent: culturally recognised descent through *both* parental lines. This is also known as *cognatic descent*.

As noted by Robin Fox (1967:169) some confusion has arisen in the anthropological literature through use of the terms 'bilateral' or 'cognatic' to cover two radically different

types of descent reckoning. Firstly, the term has been applied to collections of kin defined in relation to a particular Ego (or better, sibling set). Murdock (1949) calls this type of kin group a *bilateral kindred*. Since individuals do not live indefinitely long, bilateral kindreds cannot persist through time; indeed, at any given point in time the membership of a bilateral kindred is the same only for siblings. It is thus *impossible* for a bilateral kindred to form descent groups.

Secondly, the term has been applied to collections of kin defined in relation to a common ancestor. Fox (1967:172) calls this type of kin group an *unrestricted cognatic lineage*. Unlike the bilateral kindred the unrestricted cognatic lineage *does* include descent groups. In Fox's words, "what matters is not so much the division into unilineal and cognatic, as the difference between the *ego-focus* on the one hand with its personal 'groups', and the *ancestor-focus* on the other with its descent groups". We will take up this distinction again in section 2.3.1.

2.2 COUSIN TERMS, SIBLING TERMS AND SOCIAL STRUCTURE

Beginning with Kroeber (1909) it has been common practice in kinship theory to analyse systems of terminology into their operative features (much like the use of distinctive features in phonology). Kroeber identified eight such features as operative in kinship systems generally. Murdock (1949:100ff.) reduced these to six by conflating three features which Kroeber distinguished (sex of relative, sex of connecting relative, sex of speaker) to the single feature 'sex'. Sex of relative requires little explanation, as it is productively employed in English for all relatives except cousins (father : mother; uncle : aunt; brother : sister; son : daughter; nephew : niece, etc.). Sex of connecting relative is inoperative in English, but is needed for those terminological systems that distinguish parallel cousins (children of father's brother or mother's sister) from cross-cousins (children of father's sister or mother's brother). Sex of speaker is similarly inoperative in English, but is needed (among other reasons) for those systems that distinguish parallel siblings (brother of a man, sister of a woman) from cross-siblings (brother of a woman, sister of a man).

Based primarily on the way in which cross-cousins are classified it has been common at least since Spier (1925) to assign whole terminological systems to a general typological schema. Basing himself solely on North American Indian data, Spier recognised eight general types of kinship system; Murdock (1949:224), drawing on a global sample, recognised eleven, together with various subtypes. For our present purposes the most important types and their definitions, following Murdock (1949:223ff.) are: (1) HAWAIIAN: all cross and parallel cousins are called by the same terms as those used for siblings; (2) OMAHA: FZD and MBD are called by different terms and terminologically differentiated from sisters and parallel cousins, but FZD is terminologically classed with ZD and/or MBD with MZ; and (3) CROW: FZD and MBD are called by different terms and terminolgically differentiated from sisters and parallel cousins, but FZD is terminologically classed with FZ and/or MBD with BD. In short, Hawaiian systems of cousin classification include only relatives of Ego's generation, but do not distinguish lineal from collateral relatives. By contrast, Omaha and Crow systems distinguish lineal from collateral, but group the cross-cousins with kin of adjacent generations (the patrilateral female cross-cousin with ZD in Omaha, but with FZ in Crow; the matrilateral female cross-cousin with MZ in Omaha, but with BD in Crow).

For most of the twentieth century cousin terminology has formed the basis of kinship typologies, and has provided the clearest evidence of statistically significant cross-cultural correlations between kinship terminology and other features of social organisation. Over seventy years ago Lowie (1917:151ff.) drew attention to the seemingly non-accidental correlation between Omaha systems of cousin terminology and patrilineal descent on the one hand, and between Crow systems of cousin terminology and matrilineal descent on the other. This finding was confirmed and placed within a larger explanatory context by Murdock (1949).[6]

Much more recently, with the appearance of Nerlove and Romney (1967) and Murdock (1968), there has been an emerging awareness that systems of sibling terminology can profitably be arranged in general typological schemas much like systems of cousin terminology, and that statistically significant cross-cultural correlations can be found between the resultant types and other features of social organisation.

Based on a sample of 800 societies from all parts of the world, Murdock (1968) isolated seven types of sibling terminologies, defined by him as follows (number of instances in Murdock's sample appears in parentheses): TYPE A: *The Kordofanian or Undifferentiated Sibling Type*. The prevailing pattern is a single term, which may be glossed as 'sibling' (69); TYPE B : *The Yoruba or Relative Age Type*. The prevailing pattern is a pair of terms, which may be glossed as 'elder sibling' and 'younger sibling' (86); TYPE C : *The Algonkian or Skewed Age Type*. The prevailing pattern consists of three terms, which may be glossed as 'elder brother', 'elder sister' and 'younger sibling' (74); TYPE D : *The Dravidian or Age-Sex Type*. The prevailing pattern has four terms, which may be glossed as 'elder brother', 'elder sister', 'younger brother' and 'younger sister' (177); TYPE E : *The European or Brother-Sister Type*. The prevailing pattern has two terms, which may be glossed as 'brother' and 'sister' (156); TYPE F : *The Melanesian or Relative Sex Type*. Defined by primary distinctions of relative sex, which may assume one of four essentially alternative forms: (1) two terms, which may be glossed as 'sibling of the same sex as Ego' and 'sibling of the opposite sex' (80); (2) three terms, glossed as 'sibling of the same sex', 'brother (woman speaking)' and 'sister (man speaking)' (63); (3) three terms, glossed as 'sibling of opposite sex', 'brother (man speaking)' and 'sister (woman speaking)' (32); and (4) four terms, glossed as 'brother (man speaking)', 'brother (woman speaking)', 'sister (man speaking)' and 'sister (woman speaking)' (26); TYPE G : *The Siouan or Complexly Differentiated Type*. Defined by the application of all three distinctions – relative age, sex and

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[6] Typologies based on criteria other than cousin terminology were developed by Lowie (1928) and Kirchhoff (1932), but have been less widely used in the global characterisation of kinship systems. Needham (1962b, 1974:50-61, pers.comm.) denies the validity of Murdock's correlations on the grounds that the categories compared are artificial, and of little value in determining basic similarities and differences of social structure. Specifically, he argues that Murdock's coupling of descent principle and type of cousin terminology to define eleven basic types of social structure for all human societies ignores the more fundamental and far-reaching structural consequences of differences in marriage rule and number of descent lines. In this respect he is firmly in the Structuralist tradition of Lévi-Strauss (1969[1949]), and I am in complete sympathy with his views. However, these criticisms have no bearing on the present argument, which does not depend in any way on the acceptance of Murdock's eleven types of social structure, or even on the acceptance of such widely acknowledged terminological categories as 'Crow', 'Omaha', 'Iroquois', 'Hawaiian' and the like. To affect the present argument Needham's criticism would have to demonstrate that the notions 'descent group' and 'relative sex' are ill-defined, and of no utility to cross-cultural studies. Even if he should succeed in this, the criticism would affect only my argument for PMP descent groups, not my argument for PMP asymmetric exchange, which is supported by evidence of an entirely different kind.

relative sex – to such an extent as to prevent recognition of any possibly more basic pattern (37).

Perhaps the most important contribution of Murdock's paper is its attempt to establish what he calls "functional determinants" of terminological patterns. For the first of these determinants Murdock examines the correlation of rule of descent with type of sibling terminology, and reaches the following conclusions: (1) ambilineal descent appears especially conducive to the emergence of sibling terms of Type F; (2) bilateral descent appears relatively conducive to Types B, D and G, and reveals a negative association with Types A and F; (3) matrilineal and double descent appear especially conducive to Type F; (4) patrilineal descent appears particularly conducive to Type E; and (5) except for differences in Types E and F, matrilineal and patrilineal societies show an almost identical profile, contrasting at almost every point with the profile of bilateral societies. For the second determinant he examines the correlation of type of sibling terminology with type of cousin terminology, and concludes (p.14) that "the types of the two subsets vary almost completely independently".

2.3 Past views of early Austronesian social structure

Over the past seven decades a number of anthropologists have attempted to reconstruct the major outlines of early Austronesian social structure, and have reached very different conclusions. The lines of division between these conclusions are perhaps most clearly drawn with regard to two sets of questions: (1) Were descent groups present? (2) If cross-cousin marriage was practiced was it symmetric (both cross-cousins), or asymmetric (only the matrilateral cross-cousin)?

2.3.1 Descent groups or not?

Kroeber (1919) compared the kinship terminology of various Philippine ethnic groups and reached the following conclusions about early Philippine society: (1) no distinct cousin terms could be reconstructed; (2) there were only two sibling terms, 'eSb' and 'ySb'; (3) descent was bilateral, with no lineages present; and (4) there was no form of preferential marriage.

Murdock (1949:349ff.) reached a similar conclusion for the Austronesian-speaking peoples as a whole, maintaining that "the original Malayo-Polynesian speaking community had a social organization of Hawaiian type". By this Murdock (p.228) means a society "possessing cousin terms of Hawaiian type and lacking exogamous unilinear kin groups. In addition, it is characterised by the exceedingly frequent appearance of limited polygyny, the bilocal extended family, generation terminology for aunts and nieces, bilateral extension of incest taboos, and bilateral kindreds or demes". Murdock's conclusions about Austronesian as a whole thus agree explicitly with Kroeber's conclusions about early Philippine society in regard to points (1), (3) and (4).

More recently James J. Fox (1988b) has reviewed Kroeber's arguments, and reached conclusions similar to those of both Kroeber and Murdock (although he considers only island Southeast Asia). In particular, Fox generalises Kroeber's point (3) to island Southeast Asia as a whole, and he argues (p.42) that "the regional development of lineal systems may

have begun to develop in the southern Philippines and became more elaborated in the Indonesian islands, particularly in eastern Indonesia".

A strikingly different reconstruction of early Austronesian social organisation was proposed by the Dutch social anthropologist F.A.E. van Wouden in 1935. In it he used data for a number of societies in eastern Indonesia, drawn both from the domain of kinship and from the domain of mythology to posit an original system of "circulating connubium" or marital alliance between descent groups which was realised through matrilateral cousin marriage. Van Wouden's general structural model, which has been extensively criticised by subsequent scholars (Fox, ed. 1980), has many points of contact with that of Lévi-Strauss (1969[1949]).

To summarise, van Wouden claimed that a community ancestral to most of the societies of eastern Indonesia possessed descent groups (or lineages), and a system of political alliance founded on matrilateral cousin marriage, while at least Murdock (1949:349-350) and Fox (1988b) have denied that early Austronesian society had either of these features. What can linguistic comparison contribute to a resolution of this debate? Murdock (1968) has firmly established a statistically significant correlation between Type F sibling terminology ("defined by primary distinctions of relative sex") and lineal, particularly matrilineal, descent. Moreover, he notes (p.12) that "bilateral descent" is negatively associated with Type F terminology. Murdock (1967:49) distinguishes bilateral descent based on "Ego-oriented bilateral kin groups or categories" from bilateral descent "with reported or probable quasi-lineages", but in his 1968 paper he fails to indicate which type of bilateral descent he means. Even without further clarification regarding this point, however, it is clear that Type F sibling terminology has a statistically well-established cross-cultural association with the presence of descent groups. If it could be shown that a reconstructed language had Type F sibling terminology it would follow that speakers of that language probably traced descent through some form of lineage system, most likely through matrilineages.

2.3.2 SYMMETRIC OR ASYMMETRIC ALLIANCE?

Van Wouden's reconstruction of eastern Indonesian social organisation posited a system of "asymmetric connubium", by which he meant a culturally favoured or expected type of marriage between a man and his classificatory mother's brother's daughter. In his view (1968[1935]:87) matrilateral cross-cousin marriage was "not merely a popular form of marriage within a narrow circle of consanguineous kin, but...the logical expression of a systematic communication of women among larger social groups". A more general model of this type of social organisation (called "generalized exchange"), in which matrilateral cross-cousin marriage is viewed as the foundation of sociopolitical alliances, was developed by Lévi-Strauss (1969[1949]), who observed that minimally such a system requires three exogamous groups (so that no group, A, is both wife-giver and wife-taker with another group, B). Although van Wouden explicitly recognised the same theoretical relations, he reconstructed a system of asymmetric alliance for the societies of eastern Indonesia in which not three, but rather four groups participate, and he further arranged these in a "double two-phratry system" (p.92ff.).

Although it was first pointed out by J.P.B. de Josselin de Jong and van Wouden in 1935, Needham (1962a, ed. 1973) in particular has demonstrated that systems of asymmetric alliance are not confined to the regulation of marriage, but tend to form total conceptual

orders in which material, social and cosmological notions are encompassed under a unifying dualistic schema. Among the Purum, a Tibeto-Burman-speaking group of Manipur, eastern India, for example, this schema of dual symbolic classification includes, but is not confined to, the following categories:

TABLE 1: PURUM DUAL SYMBOLIC CLASSIFICATION (after Needham 1962a)

Left	Right
Affines	Kin
Wife-takers	Wife-givers
Inferior	Superior
Female	Male
Below	Above
Earth	Sky
Bad death	Good death
Profane	Sacred

Strikingly similar systems of dual symbolic classification have been reported for a number of Austronesian-speaking societies in Indonesia, including the Toba Batak of Sumatra (Vergouwen 1964[1933]), the Atoni of Timor (Cunningham 1964; Schulte-Nordholt 1971:407ff.), the Tetun of Timor (Hicks 1976:44ff., 108), and the Kambera of eastern Sumba (Forth 1981:37-44). Indeed, the classic essay of Hertz (1973[1909]) suggests that there is a universal dualistic conceptual schema which differs only in particular details from one society to the next. Such schemas appear to be found in societies with a wide range of marriage systems, but when they co-occur with systems of matrilateral cousin marriage they assign wife-takers to the category that includes 'left' and 'female' and wife-givers to the category that includes 'right' and 'male'.

Despite van Wouden's strong emphasis on the 'original' character of asymmetric systems, not all of the societies of eastern Indonesia are asymmetric. As noted in the contributions edited by Fox (1980), although virtually all of the societies of eastern Indonesia practise some form of marital alliance between descent groups, there is an exuberant and sometimes perplexing variation in the form that such alliance systems take. Needham (1967, 1984) has argued, contrary to van Wouden, that the original form of social organisation in eastern Indonesia was based not on asymmetric alliance, but rather on symmetric alliance.[7] Aberle (1980) and Barnes (pers.comm.) suggest much the same, and Forth (1990) has explicitly argued for an evolution from symmetry to asymmetry within a more restricted region of eastern Indonesia. On the level of the individual symmetric alliance is realised through bilateral cross-cousin marriage (marriage with either classificatory cross-cousin), and in such an arrangement both exchange groups are equally wife-giver and wife-taker. The question of group hierarchy as determined by an established and deliberately perpetuated direction of marital alliance – a characteristic which is so prominent in asymmetric systems (see Table 1) – thus cannot arise in the symmetric variant.

How can linguistic evidence help to determine whether systems of symmetric or of asymmetric alliance have an older history in the Austronesian language family? The matter here is not so simple as determining whether or not descent groups were present, and before

[7] Needham further distinguishes between 'prescriptive' and non-prescriptive terminologies. More precisely, then, he has argued for an evolution of attested terminological systems from an earlier terminological system of symmetric prescriptive alliance. I disregard the issue of prescriptive vs non-prescriptive terminology in constructing my argument, as it appears to have no bearing on the outcome.

it can be approached meaningfully some background in comparative linguistics is essential for the non-linguist reader.

3. LINGUISTIC PREREQUISITES

Between about 1890 and the time of his death in 1913, the Swiss linguist Ferdinand de Saussure laid the foundations for the study of language as part of a general theory of signs. Central to a number of his analyses was the principle of the "arbitrariness of the linguistic sign", or the generally non-iconic relationship between sound and meaning. It is this principle which makes it possible to determine whether similarities between languages have a value as markers of shared history, or whether such similarities might as easily be attributed to the independent operation of language-universal tendencies. Ironically, the field of historical linguistics, which may be said to owe its existence to Saussure's insight, actually developed long before this insight had been explicitly formulated.

3.1 THE COMPARATIVE METHOD OF LINGUISTICS

The comparative method of linguistics was developed in connection with the establishment of the Indo-European language family and the reconstruction of its hypothetical immediate common ancestor, Proto Indo-European. This undertaking occupied several generations of scholars, and today stands as one of the great intellectual achievements of the nineteenth century. Like the theory of evolution by natural selection the comparative method of linguistics continues to provide a scientific paradigm within which productive research is conducted. Its fundamental soundness as a tool for prehistoric inference has been validated repeatedly over more than a century and a half, at first almost entirely through research on the Indo-European languages, but increasingly in this century through comparative research on a variety of other language families (for the classic extension of the method to non-western languages see Bloomfield (1925, 1928); for the proceedings of a recent symposium devoted to the universality of the comparative method see Baldi (1990)).[8]

One of the key discoveries made by Rask and Grimm during the first two decades of the nineteenth century and later refined by Grassmann, Verner and the Neogrammarians, is the regularity of sound change, often referred to as the 'Regularity Hypothesis'. It is the Regularity Hypothesis which makes it possible to distinguish linguistic similarity due to chance or borrowing from linguistic similarity due to divergent descent from a common ancestor, and hence to reconstruct earlier stages of linguistic (and cultural) history. Sound correspondences are exemplified in morphemes, and morphemes of similar meaning which exhibit recurrent sound correspondences are said to be *cognate*.[9] Based on sets of cognate morphemes in at least two widely separated languages one reconstructs protophonemes, protoforms and ultimately protolanguages. It is a fundamental premise of historical linguistics that cognation is established on the basis of recurrent sound correspondences

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8 About ten years ago, in discussing diachronic issues in ethnology with a distinguished European social anthropologist who specialises in Southeast Asia, I was asked (much to my astonishment) whether historical linguistics hadn't been 'discredited'. More than anything I can add, remarks such as these expose the gulf that has come to separate linguistics and anthropology in many universities during the past quarter of a century, much to the detriment of progress with diachronic issues in ethnology.

9 For reasons explained in Blust (forthcoming b) I prefer 'recurrent sound correspondence/recurrent sound change' to 'regular sound correspondence/regular sound change'. This deviation from the strict Neogrammarian position has no effect on the argument presented here.

rather than on the basis of phonetic similarity. The two may, and often do coincide, but many phonetically similar morphemes in different languages are not cognate, and many cognate morphemes in different languages are not phonetically similar.

Regretfully, there have been several linguistic analyses in the anthropological literature relating to Indonesia in recent years which show that the concept of 'cognate' continues to be misunderstood by well-meaning social anthropologists who have an interest in historical issues in ethnology, but who lack training in the tools best suited to approach such issues. One of the major aims of this paper is therefore to demonstrate the central importance of adequate methods of historical reconstruction in linguistics to historical reconstruction in ethnology.[10]

The successes of the comparative method of linguistics have so often been celebrated that its shortcomings are sometimes overlooked by those who rely on secondhand knowledge. One point that should be emphasised is that the reconstruction of a 5,000 or 6,000 year-old protolanguage is not a high resolution affair. Some social anthropologists rather naively expect the comparative linguist who is involved in reconstruction to be able to distinguish between theoretical models of social organisation that are of interest to kinship specialists working with attested societies. This type of expectation can be compared to a demand that astronomers using earth-based telescopes distinguish features a few metres in size on the surface of Mars. No protolanguage of any great time-depth, not even Proto Indo-European, has been reconstructed in such fine detail that we can, for example, translate a passage of more than a few words from a modern language into it (despite some overly-ambitious nineteenth-century attempts to do so).

One other matter than can be raised here concerns a belief expressed by Aberle (1980:226-228), Fox (1980a:234, 1988b:36ff.) and Forth (1985:137, 1990:389) that (in the words of the last-mentioned writer) "terminological reconstructions should proceed from the bottom up, by comparing cognate terms from the smallest sub-groupings before positing prototerms for such inclusive groupings as PAN and PMP". This point of view, unjustified as it is, is surprisingly widespread, not only among anthropologists, but even among some linguists (Blust 1976b:354). The reconstruction of Proto Indo-European did not proceed "from the bottom up", nor did, for example, Dempwolff (1934-38) see the need to reconstruct Proto Tagalic, Proto South-West Barito, Proto Malayic or Proto Polynesian before reconstructing

[10] Particularly egregious examples are Forth (1985, 1990) and Fox (1988a). In the first of these papers it is argued that Kambera (Sumba) *layia* 'WB, ZH' (dubiously analysed into two morphemes *la-yia*) is a reflex of Proto Malayo-Polynesian **hipaR* 'sibling-in-law (probably of the same sex only)'. Apart from the fact that the reconstruction is repeatedly written incorrectly as **ipay/hipay*, Forth's entire argument is based on a priori notions of plausible cross-linguistic similarity rather than on a consideration of recurrent sound correspondences, which would have shown him that there is no precedent for his claim that PMP **p* disappeared in Kambera (the expected form of **hipaR* in Kambera is ***ipa*). In the second paper Forth (1990:376ff.) candidly acknowledges that his understanding of 'cognate' is a relationship based purely on phonetic similarity, and then proceeds to erect an elaborate historical argument based on the comparison of East Sumbanese *mamu* 'FZ, FZH' with reflexes of PMP **mama* 'MB' despite an obvious irregularity in the sound correspondences (cf. PMP **ama* > KMB /ama/ 'F', **ina* > /ina/ 'M'. In the third paper Fox attempts to connect the arbitrarily segmented first syllable of PMP **puqun* 'base of a tree, foundation, origin' with the arbitrarily segmented last syllable of **empu* 'grandparent/grandchild (reciprocal)', and both of these with **tumbuq* 'to grow' through its Proto Oceanic form **tumpuq*. This argument, presented by a highly accomplished ethnographer, shows so many serious misunderstandings of morphology, the Regularity Hypothesis and the interrelationships of protolanguages of different time-depths that one hardly knows where to begin the process of correction. Fortunately, we are far better off in the Oceanic branch of Austronesian, where prominent anthropologists such as Goodenough, Chowning and Green are well-trained in the basics of comparative linguistics.

Proto Austronesian based on a direct comparison of such languages as Tagalog, Ngaju Dayak, Malay, Tongan or Samoan. In fact, the reconstruction of such lower-order protolanguages as Proto Germanic profited enormously from the *prior* existence of reconstructions for Proto Indo-European, as in the formulation of Verner's Law. Anttila (1972:346) calls the reconstruction of lower-order protolanguages through reference to external witnesses "inverted reconstruction", and Blust (1972c:1ff.) calls the same procedure "reconstruction from the top down". In both cases its value is emphasised. Moreover, as noted in Blust (1976b), the logical outcome of a strict inductivist approach to linguistic reconstruction such as that recommended by Forth as the only acceptable one, is a potentially infinite regress to the comparison of dialect, subdialect and even idiolect before any useful comparative work can commence.

Finally, it should be appreciated that *all* languages change over time. What this means to the practising comparative linguist is that situations may arise in which it is necessary to reconstruct some feature for a protolanguage which is retained unchanged in *none* of its descendants (though its distinctness from other features must be retained in at least two witnesses for it to be reconstructable). The justification for such reconstructions, as for any others, is always: (1) compatibility with the primary data for which an explanation is sought, and (2) competitive simplicity in relation to alternative hypotheses. Since all languages change, the raw material of comparative linguistics is that part of prehistoric languages involving an arbitrary association of sound and meaning which has survived in several widely separated descendants. The collection of languages which retain any given feature will differ from one linguistic feature to the next. If some feature of a prehistoric language is distinguished in only one descendant we will have no basis for reconstructing it, even though it was present in the language we wish to reconstruct. For this reason the description of a reconstructed language is inevitably less complete than that of an attested language. In conducting diachronic research on a language that existed five or six millenia in the past one learns to accept a certain measure of crudity in comparison with what could be accomplished if direct observation were possible. The same caveat applies to the reconstruction of cultures that are associated with such prehistoric languages: for a social anthropologist to demand that a linguistic reconstruction provide details that are descriptively important to anthropological theory may be unreasonable, given the general lability of both linguistic and cultural forms over a period of millenia. It is a remarkable fact that the comparative method allows us to penetrate confidently to a time-depth of perhaps six millenia, and any general feature of social organisation that can be inferred from such reconstructed language material is a gift that we are not likely to receive in any other way.

3.2 SEMANTIC RECONSTRUCTION

When historical linguists speak of linguistic reconstruction what is normally meant is the reconstruction of phonemes (phonological reconstruction) and morphemes (lexical reconstruction). It should be recognised that phonological and lexical reconstruction are interdependent processes, since phonemes can only be reconstructed on the basis of correspondences in cognate morphemes. Hence protophonemes and protomorphemes (or *etyma*) are reconstructed together. Methods and procedures for syntactic reconstruction (as distinct from the reconstruction of inflectional morphology) have generally lagged far behind those for phonology and the lexicon.

In contrast to phonological/lexical reconstruction, where well-established methods have been available for generations, and to syntactic reconstruction, which until recently has been largely ignored due to the lack of adequate methods of historical inference, semantic reconstruction has occupied an awkward limbo somewhere in between. On the one hand, reconstructed morphemes must be assigned meanings. Unlike syntactic reconstruction, which is relatively independent of phonological/lexical reconstruction, the problem of semantic reconstruction cannot, therefore, simply be ignored. On the other hand, no generally accepted method exists for reconstructing meanings such as exists for the reconstruction of phonemes.

In many, perhaps most cases, this unfortunate state of affairs does not lead to serious problems. The comparison of Tagalog *laŋit*, Malay *laŋit*, Manggarai *laŋit*, Kei *lanit*, Samoan *laŋi*, all meaning 'sky' requires no semantic inference apart from the relatively uncontroversial one that **laŋit* must have meant 'sky'. But what are we to do with cognate terms that differ in meaning, such as English *thatch* next to Dutch *dak*, German *Dach* 'roof (of any material)'? Here the forms compared exhibit recurrent phonological correspondences (for the initial consonant, compare, for example, *three* : *drie* : *drei*, or *thief* : *dief* : *Dieb*; for the final consonant, compare *rich* : *rijk* : *Reich*, or *such* : *zulk* : *solch*), but what did Proto West Germanic **θak* mean?

Dyen and Aberle (1974) have developed a set of procedures for matching reconstructed morphemes with *predetermined* categories of meaning. They call this set of procedures "lexical reconstruction". It is essential to recognise that lexical reconstruction is interested only in the matching of reconstructed morphemes with meanings that are drawn from the lists of languages compared. In their approach no reconstructed morpheme can have a meaning which is not reflected unchanged in at least two languages that belong to different primary subgroups. They thus have no methodologically motivated basis for glossing a form such as Proto West Germanic **θak*, where one primary subgroup (represented by English) reflects the meaning 'thatch', while the other primary subgroup (represented by Dutch and German) reflects the meaning 'roof'.

Blust (1987a) contrasts lexical reconstruction as advocated by Dyen and Aberle with a fundamentally different approach, called "semantic reconstruction". Unlike lexical reconstruction, in which one asks the question 'What was the protomorpheme which probably meant 'X'?', semantic reconstruction requires one to ask the very different question 'What was the probable meaning of protomorpheme 'X'?'. The procedure of semantic reconstruction turns about two crucial concepts: (1) the meaning of a lexical item in an attested or a reconstructed language is determined by contrast within a field of lexical items of partially similar meaning, and (2) two reconstructed lexical items with radically different 'semantic profiles' must have differed in meaning. The first of these concepts is the familiar Saussurean approach to the determination of the structural units of language: "Language is a system of interdependent terms in which the value of each term results solely from the simultaneous presence of the others..." (Saussure 1966[1915]:114). The second concept ensures that we have some basis for explaining radically different trajectories of semantic evolution in the reflexes of protoforms that could be glossed the same using the Dyen-Aberle approach.[11]

[11] Oddly, Forth (1990:389, and fn. 20) attributes to me a belief that categories of meaning in reconstructed languages must be identical to categories of meaning in their descendants: "The case of *tuya* also illustrates the need to formulate particular courses of terminological change in advancing an evolutionary

Before concluding this section one other methodological issue should be aired. Fox (1988b:36, pers.comm.) has insisted that any conclusions about social organisation which are based on reconstructed kinship terminology must await the reconstruction of a complete terminological system. This requirement is consistent with the Saussurean approach to meaning in general, and I am in full agreement with it as it applies to *synchronic systems*. However, Saussure (1966:90) clearly distinguishes between what he calls "the two linguistics" (static and evolutionary, or synchronic and diachronic), and he maintains (p.91) that "the synchronic and diachronic 'phenomenon'...have nothing in common...One is a relation between simultaneous elements, the other the substitution of one element for another in time, an event". It may be useful to think of these respectively as 'horizontal' and 'vertical' relations of meaning. Misunderstanding has arisen where Fox (and some other social anthropologists) have approached diachronic analyses as though they are simply synchronic analyses of past systems. What this approach overlooks is the dimension of change linking past synchronic systems with present synchronic systems, a dimension which is at least partially recoverable from a comparison of the glosses of heterosemantic cognate forms. The fact that English *clock*, a generic term for any stationary timepiece, is cognate with Dutch *klok*, German *Glocke* 'bell (and clock)' surely is not without significance for our understanding of the history of time-keeping in the European cultural tradition. Moreover, the reconciliation of these divergent glosses under a single etymon yields a valuable historical inference that can be justified outside any system of past or present synchronic contrasts. Rather than mechanically reconstructing a Proto West Germanic morpheme for 'clock' (based on an agreement of meaning in all three languages) we must infer not only a meaning 'bell', but also a behavioural precondition for the transfer of meaning, hence a cultural practice (dating at least from the Middle Ages) of using bells for the public marking of time. Similar arguments supporting an inference of earlier cave burial among ethnic groups in northern Sarawak that have had no such practice within the ethnographic present, and of earlier matrilineal descent among the patrilineal peoples of Malaita in the Solomon Islands, are presented in Blust (1986-87).

In dealing with the subset of kinship terminology relevant to the present argument I follow the approach to semantic reconstruction developed in Blust (1987a). A fundamental premise of this approach is that true synonymy is rare, and should not be lightly assumed in the glossing of reconstructed morphemes.

3.3 SUBGROUPING

The problem of linguistic subgrouping can be formulated as the following question. Given three languages A, B and C which are known to be genetically related (e.g. Icelandic, English and French) is there a basis for concluding that two of the languages are more closely related to one another than either is to the third? The importance of subgrouping to reconstruction has been appreciated at least since the Neogrammarians (last quarter of the nineteenth century), and the principles which govern the evaluation of subgrouping evidence were first clearly enunciated during the same period. Briefly, only linguistic innovations (changes in phonology, morphology, lexicon, syntax or semantics) can be used as reliable

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interpretation, rather than simply assuming (as Blust implicitly does) that current usages will directly reflect a single, original system at the most inclusive level". Not only have I never advocated such an approach to semantic reconstruction, but it is rather well known that I have argued vigorously against it (Blust 1987a).

evidence for subgrouping, common retentions telling us nothing about a period of exclusively shared history. The factor which most often interferes with straightforward application of the comparative method and the determination of exclusively shared innovations is borrowing. However, borrowing is far more likely to affect semantic domains which can be characterised broadly as 'cultural' than the semantic domains represented by 'basic vocabulary' (body parts, pronouns, low numerals, basic kin terms, words for everyday universal natural phenomena, etc.). A second factor which complicates the problem of linguistic subgrouping is drift, or independent parallel development. This is discussed in section 3.4.

Greenberg (1957:46ff.) points out that the problem of subgrouping genetically related languages is often far more difficult than the problem of establishing the primary fact of relationship. This has certainly been true in Austronesian, as the broad membership of the family (exclusive of the Formosan languages) has been known since the second voyage of Cook (1772-75), yet no comprehensive subgrouping was undertaken until that of Dyen (1965b). Dyen's classification was based on the then new and largely untested method of lexicostatistics, and it thus constituted not only a major application of the method to a particular family of languages, but also an important test of the validity of lexicostatistics in general.

Although the results of Dyen's classification were initially greeted with some enthusiasm (e.g. Murdoch 1964), today virtually all Austronesian comparativists reject his family tree, both with reference to its major branches, and to many of its finer ramifications. It is now evident that in determining such major groupings as the 'Malayo-Polynesian Linkage' Dyen was simply misled by the failure of lexicostatistics to distinguish innovations from retentions. Languages which are demonstrably more conservative in the rate at which they have replaced basic vocabulary (e.g. Malay, Tagalog, the Polynesian languages) were thus grouped together despite a total absence of qualitative evidence for such a grouping, and indeed a good deal of qualitative evidence which is directly at odds with it (Grace 1966, Bellwood 1979:124ff.).

The following subgrouping of Austronesian is now accepted, in whole or in part, by a number of scholars working within the fields of Austronesian linguistics, and of general linguistics: (1) Austronesian (AN) divides into Formosan (one or more primary subgroups in Taiwan) and Malayo-Polynesian (MP: all non-Formosan AN languages), (2) MP divides into Western Malayo-Polynesian (WMP: AN languages of the Philippines, western Indonesia, mainland Southeast Asia and Madagascar, together with Palauan and Chamorro of western Micronesia) and Central-Eastern Malayo-Polynesian (CEMP), (3) CEMP divides into Central Malayo-Polynesian (CMP: AN languages of the Lesser Sunda and Molucca Islands from Bimanese in the west through Aru and thence northwards through the central Molucca Islands inclusive of the Sula Archipelago), and Eastern Malayo-Polynesian (EMP), (4) EMP divides into South Halmahera-West New Guinea (SHWNG: AN languages of Halmahera, the Raja Ampat Islands and the Vogelkop Peninsula of New Guinea as far east as Waropen) and Oceanic (OC), (5) OC includes over 450 languages in Melanesia, Micronesia and Polynesia. The languages of the Bomberai Peninsula (Irian) are insufficiently known to permit secure subgrouping, but preliminary data suggest that some of these, including at least Sekar, Onin and Uruangnirin, are CMP, while others (as Irahutu) may constitute a primary branch of the SHWNG group (Blust 1993). The position of Yapese (western Micronesia) within MP is unclear.

This subgrouping was challenged by Aberle (1980) who, however, did so without any reference to the relevant literature or supporting evidence. The Oceanic node was first demonstrated by Dempwolff (1937), and is now so well established as to require little comment. Arguments in support of EMP are presented in Blust (1978a), arguments in support of CEMP in Blust (1974a, 1983-84b, 1993), and arguments in support of MP in Blust (1977a, 1992a). This view of subgrouping relationships in Austronesian has not been without its critics (most notably Isidore Dyen), but it has been adopted almost unchanged by Bellwood (1985:107ff.), Ruhlen (1987) and Clark (1992). In a recent publication Grace (1990:160) refers to "Robert Blust's classification, which appears to be accepted at least as a working hypothesis by the majority of Austronesianists".

The point of the preceding paragraph is to make it clear to the uninformed reader that the subgrouping adopted in this paper (1) is supported by a good deal of published data and argumentation, and (2) is independent of the argument presented here.

3.4 DRIFT

The term "drift" was introduced into the linguistic literature by Edward Sapir (1921) in connection with observations about the history of pluralising umlaut in the Germanic languages. Sapir pointed out that both English and High German have undergone a series of changes in which an old plural suffix **-i* was weakened (in German) or lost (in English), but only after transferring the grammatical information that it had originally carried to the vowel of the nominal stem through the phonological process of umlaut. As a result of this process irregular singular : plural forms of the type *mouse* : *mice* arose in English and parallel singular : plural forms of the type *Maus* : *Mäuse* arose quite independently in High German (but not Low German). Given the fairly detailed agreement in the form of this change one would normally consider it simplest to assume that it took place once in the common ancestor of both languages. Instead, Sapir argued that the change was completely independent in the two closely related languages, having begun in each after their separation and the transplantation of English from the European mainland to the British Isles.

Leonard Bloomfield, Sapir's contemporary and competitor for the leadership of American linguistics throughout the 1920s and 1930s, treated the idea of drift with the same scepticism that he reserved for 'mentalistic' concepts in descriptive linguistics. To him drift was a 'mystical' concept not worthy of serious scientific study.

Time has shown the importance of Sapir's insight. Other instances of drift, both large and small, have been documented and their theoretical significance discussed by linguists with a variety of theoretical persuasions, including Hockett (1948), Greenberg (1957), Vennemann (1975), Blust (1978b:117ff., 1990), Malkiel (1981) and Donegan and Stampe (1983). The common view of these and other scholars who have written on the subject is that drift (Malkiel prefers to call it "slant") is a product of the independent operation of inherited structural pressures in languages that have separated from a common ancestor. The consequence of this shared set of constraints and tendencies is an increased likelihood for historically independent changes to follow similar lines of development in genetically related languages. Understandably, all linguistic examples of drift that have been described to date appear to be motivated by structural pressures of *language* organisation. In this paper, however, I argue for the first reported case of a linguistic drift that is motivated by structural pressures of *social* organisation.

4. BRIEF SUMMARY

To assist the reader in following the main outlines of the argument, I briefly summarise in this section the major observations which provide its empirical substance.

It is important for the anthropologist reader to recognise that the inferences reached in this paper do not depend in any way on a *particular model* of how systems of asymmetric alliance work. All that the reader must allow in order to accept my inference that PMP society had descent groups is: (1) the correlation between type of sibling terminology and type of descent reported cross-culturally by Murdock (1968); (2) the 'uniformitarian hypothesis' that correlations between features of terminology and type of descent which hold in the present also held in the past; and (3) my reconstruction of a cross/parallel distinction in the PMP sibling terminology. In short, if the cross/parallel distinction shows a statistically significant correlation with the presence of descent groups, as Murdock claims to have demonstrated, and such correlations as hold in the present also held in the past, then the presence of a reconstructed cross/parallel distinction in the PMP sibling terms clearly supports a probabilistic inference that descent groups were present in PMP society.

For my second inference (that a form of matrilateral cross-cousin marriage was a dominant PMP organisational ideal) the reader need only accept the following propositions: (4) the PMP terms for cross-siblings were **ñaRa* 'B (w.s.)' and **betaw* 'Z (m.s.)'; (5) these semantically non-derivative, monomorphemic terms were replaced in some WMP languages, some CMP languages, and all OC languages by terms which had the primary meanings 'male/female' or 'male child/female child'; (6) PMP **anak* 'child' meant not only 'offspring', but also 'member of a social group'; (7) in systems of dual cosmological classification universally the classificatory category 'male' aligns with 'wife-giver' and the classificatory category 'female' with 'wife-taker'; and (8) PMP **anak ma-Ruqanay/laki* ('child/group' + 'male') and **anak bahi/babahi/binahi* ('child/group' + 'female') referred not to cross-siblings, but rather to wife-givers and wife-takers respectively, as attested wholly or in part in such contemporary languages as Karo Batak and Dairi-Pakpak Batak of Sumatra, Manggarai, Atoni and Tetun of the Lesser Sunda Islands, and Huaulu of the Molucca Islands.

Finally it must be pointed out that the two inferences which I have proposed (presence of descent groups, adherence to an ideal of matrilateral cross-cousin marriage) are *logically independent*. Although the evidence for each overlaps in my reconstruction of a cross/parallel distinction in the PMP sibling terminology, the first inference is based entirely on points (1), (2) and (3), and these points in themselves imply nothing about a marriage rule.

5. PROTO MALAYO-POLYNESIAN SIBLING TERMS

In his pioneering but outdated comparative dictionary, based on data from eleven of the more than 900 Austronesian languages, Dempwolff (1938) reconstructed four terms for siblings. In Dyen's orthography they are: (1) **a(n)ji* 'consanguineal relative (generally younger)'; (2) **betaw* 'sibling of the opposite sex'; (3) **qa(n)ji* 'consanguineal relative (generally of the opposite sex)'; and (4) **kaka* 'elder sibling'. The first and third items were erroneously reconstructed as doublets because of Dempwolff's failure to deal adequately with the correspondences that Dyen (1953b) assigned to **q*, **h* (later rewritten **S*) and zero. This leaves three PMP terms, now written **hua(n)ji*, **betaw* and **kaka*.

It is clear that Dempwolff's reconstructed terms do not form a coherent system definable in terms of relative or absolute sex, relative age or other features that are commonly used to generate systems of sibling terminology (Nerlove & Romney 1967, Murdock 1968). Most notably, Dempwolff found no comparative evidence in the eleven languages he considered for reconstructing: (1) a second monomorphemic cross-sibling term, or (2) two additional semantically derivative or morphologically complex cross-sibling terms, both of which are revealed by wider comparison. I refer to the monomorphemic expressions as 'historically primary', and the semantically derivative or morphologically complex expressions as 'historically secondary' cross-sibling terms respectively.

5.1 THE HISTORICALLY PRIMARY SIBLING TERMS

Table 2 presents evidence which justifies the reconstruction of four PMP sibling terms: **betaw* 'sister (man speaking)', **ñaRa* 'brother (woman speaking)', **kaka/aka* 'elder sibling' and **hua(n)ji* 'younger sibling', the latter two possibly restricted to siblings of the same sex. The languages from which data is cited are segregated into three major subgroups: Western Malayo-Polynesian (WMP), Central Malayo-Polynesian (CMP), and Oceanic (OC). In a few cases it has been necessary to infer the probable gloss of a term from the gloss actually given, although as a rule I have adhered closely to my sources even where there are grounds for questioning them (cf. Appendix).[12]

TABLE 2: EVIDENCE FOR THE HISTORICALLY PRIMARY PMP SIBLING TERMS

(1) **betaw*

WMP:
Berawan (Long Terawan) *betaw* 'sister' (1)
Ngaju Dayak *betaw* 'sister, man speaking' (2)
Toba Batak *i-boto* 'sibling of opposite sex' (3)
Simalungun Batak *botow* 'sibling of opposite sex'

CMP:
Manggarai *weta* 'sister, man speaking'
Ngadha *veta* 'sister, man speaking'
Endeh *veta* 'sister, man speaking'
Waijewa *woto* 'sister, man speaking'
Roti *foto* 'sister, man speaking'
Tetun *feto-n* 'sister, man speaking'
Alune *beta* 'sibling of opposite sex'
Soboyo *foto* 'sister, man speaking'

(2) **ñaRa*

WMP:
Ngaju Dayak *ñahE*[13] 'brother, woman speaking' (2)

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[12] Cases where I question (but accept) the source appear in the Appendix with a parenthesised alternative gloss followed by a question mark, as with Maranao *kaka* 'elder' (= e//?). Cases where I reinterpret (and hence reject) the gloss given by the source appear with a parenthesised alternative gloss not followed by a question mark, as with Maranao *babai* 'Z' (= xf). For a justification of the segmentation of initial **t-*, and of final **-ŋ* and **-ʔ* see Blust (1979).

[13] For typographical convenience I use 'E' for Hardeland's (1859) digraph.

CMP:
Komodo *na* 'brother, woman speaking'
Manggarai *nara* 'brother, woman speaking'
Ngadha *nara* 'brother, woman speaking'
Endeh *nara* 'brother, woman speaking'
Sika *nara* 'brother, woman speaking'
Solorese *naa* 'brother, woman speaking'
Waijewa *na?a* 'brother, woman speaking'
Roti *na* 'brother, woman speaking'
Tetun *naa-n* 'brother, woman speaking'
Erai *nara-n* 'sibling of opposite sex'
Leti *nara* 'sibling of opposite sex'
Wetan *nara* 'sibling of opposite sex'
Soboyo *naha* 'brother, woman speaking'

(3) **kaka/aka*

WMP:

PHILIPPINES
Ivatan *kaka* 'elder sibling' (4)
Botolan Sambal *kaka-?* 'elder sibling'
Kalamian Tagbanwa *aka-?* 'elder sibling'
Umirey Dumagat *kaka* 'elder sibling'
Casiguran Dumagat *aka* 'elder sibling'
Atta *kaká* 'elder sibling'
Ata Manobo *kako-y* 'elder sibling of same sex' (5)
Cotabato Manobo *kaka-y* 'elder sibling of same sex'
Samal *si-aka* 'elder sibling'

WESTERN INDONESIA
Ngaju Dayak *kaka* 'elder sibling'
Ngaju Dayak *aka* 'elder sibling'[14]
Malay *kaka-k* 'elder sibling'
Toba Batak *haha* 'elder sibling of same sex'
Dairi-Pakpak Batak *kaka* 'elder sibling of same sex'
Simalur *kaka-?* 'elder sibling'
Nias *ka?a* 'elder sibling'
Mentawai *kaka* 'elder sibling'
Middle Malay *kaka-?* 'elder sibling'
Old Javanese *kaka-ŋ* 'elder sibling'
Javanese *kaka-ŋ* 'elder sibling'
Sasak *kaka-?* 'elder sibling'

[14] According to Hardeland (1859) /aka/ refers to one's *own* elder sibling, while /kaka/ is used in general reference. Durdje Durasid, a native speaker of the Katingan dialect of Ngaju Dayak, maintains that /kaka/, /aka/ and /andi/ are terms of reference for parallel siblings only, but are terms of address/vocatives for both cross and parallel siblings. Thus, a man calls/addresses his eZ as /kaka/, but refers to her as /betaw/, but he both calls and refers to his eB as /kaka/. According to Durasid, /kaka/ and /aka/ are synonymous, but /aka/ connotes greater affection. In addition, a third person may use *yariŋ* as a term of reference for a younger parallel sibling, as when a father speaks to his older son about the latter's younger brother.

SULAWESI
Sangir *kaka-ʔ/aka-ŋ* 'elder sibling of same sex'[15]
Tondano *kaka-ʔ* 'elder sibling'
Bare'e *tu-kaka* 'elder sibling'
Tae' *kaka-ʔ* 'elder sibling'
Mori *aka* 'elder sibling'
Makassarese *kaka-ʔ* 'elder sibling'
Wolio *aka* 'elder sibling'

CMP:
Komodo *ha(ha)* 'elder sibling'
Manggarai *kaʔe*[16] 'elder sibling of same sex'
Ngadha *kae* 'elder sibling'
Endeh *kaʔe* 'elder sibling of same sex'
Solorese *kaka* 'elder sibling'
Roti *kaʔa* 'elder sibling of same sex'
Wetan *kaka* 'elder sibling'
Fordat *aʔa* 'elder sibling of same sex'
Paulohi *w-aa* 'elder sibling'
Soboyo *kaka* 'elder sibling'

OC:
Yabem *kaka* 'elder sibling of same sex (vocative)'
Manam *aʔa* 'elder sibling of same sex (vocative)'
Motu *kaka* 'elder sibling of same sex'
Bugotu *kaka* 'elder sibling of same sex (vocative)'

(4) **hua(n)ji*

WMP:

PHILIPPINES
Ivatan *wari* 'younger sibling' (4)
Botolan Sambal *ali* 'younger sibling'
Kalamian Tagbanwa *ari-ʔ* 'younger sibling'
Umirey Dumagat *weli* 'younger sibling'
Casiguran Dumagat *wadi* 'younger sibling'
Ata Manobo *hari* 'younger sibling of same sex' (5)
Cotabato Manobo *hadi* 'younger sibling of same sex'
Maranao *pag-ari* 'brother, sister'
Samal *si-ali* 'younger sibling'

WESTERN INDONESIA
Miri *t-adih* 'younger sibling'
Bintulu *t-arey* 'younger sibling'
Ngaju Dayak *andi* 'younger sibling'
Ngaju Dayak *pah-ari* 'parallel sibling'

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[15] Steller and Aebersold (1959) give *aka-ŋ* as 'the elder of two brothers or sisters' and *kaka* as 'eB', 'eZ'. The restriction to parallel siblings thus appears to apply only to the first term.

[16] Manggarai, Endeh /kaʔe/, Ngadha /kae/ cannot regularly reflect **kaka*. They may be irregularly reshaped reflexes of **kaka*, or unrelated forms which show a superficial resemblance to the expected reflex of this item.

Rhade *adei* 'clan, blood relative (usually younger)'
Malay *adi-k* 'younger sibling'
Toba Batak *aŋgi* 'younger sibling of same sex'
Dairi-Pakpak Batak *aŋgi* 'younger sibling of same sex'
Simalur *axi* 'younger sibling'
Nias *achi* 'younger sibling'
Middle Malay *adi-ŋ* 'younger sibling'
Mentawai *bagi* 'younger sibling'
Old Javanese *ari* 'younger sibling'
Javanese *ari* 'younger sibling'
Sasak *adi-ʔ* 'younger sibling'

SULAWESI
Sangir *t-uari* 'younger sibling'
Tondano *rari* 'younger sibling'
Bare'e *tu-aʔi* 'younger sibling'
Tae' *adi* 'younger sibling'
Mori *wai* 'younger sibling'
Makassarese *andi-ʔ* 'younger sibling (less refined)'
Makassarese *ari* 'younger sibling (more refined)'
Wolio *andi* 'younger sibling'

CMP:
Komodo *ari* 'younger sibling'
Manggarai *ase* 'younger sibling of same sex'
Ngadha *azi* 'younger sibling'
Endeh *ari* 'younger sibling of same sex'
Solorese *ari-n* 'younger sibling'
Kambera *eri* 'younger sibling of same sex'
Roti *fadi* 'younger sibling of same sex'
Wetan *yari* 'younger sibling'
Fordat *wari* 'younger sibling of same sex'
Kei *wari-n* 'younger sibling of same sex'
Paulohi *wari* 'younger sibling'

OC:
Yabem *l-asi* 'younger sibling of same sex'
Manam *t-ari* 'younger sibling of same sex'
Motu *t-adi* 'younger sibling of same sex'
Bugotu *t-ahi* 'younger sibling of same sex'

In the above citations I have tried to group together only terms which belong to the same cognate set, regardless of their meaning. In a few cases the forms cited may in fact not be cognate, as with Manggarai, Endeh /kaʔe/, Ngadha /kae/ 'elder sibling of the same sex', cited under **kaka*. In virtually every other case the phonological correspondences relating the attested forms to their reconstructed prototypes can be shown to be recurrent. This remark may require a note of explication.

My Ngaju Dayak material, like that of Dempwolff and Dyen before me, comes from the classic dictionary of Hardeland (1859), in which two 'speech strata' were recognised by Dempwolff (1937) and reinterpreted by Dyen (1956). Ngaju Dayak -/E/ is the normal reflex

of PMP **-a* in the 'old speech stratum', while -/a/ is the corresponding 'new speech stratum' reflex (Dyen 1956). Since 'new speech stratum' forms generally are believed to be products of borrowing from Banjarese Malay it is possible that Ngaju Dayak /kaka/ is a Banjarese loan. However, the occurence of the variant /aka/, which is not reported for Banjarese or other Malay dialects, raises doubts about this suggestion. Furthermore, Hudson (1967) lists kinship terms for several Ngaju dialects, including Kapuas /kaka?/ 'elder sibling', /ñaha?/ 'brother' (implied, but not stated to be from the standpoint of a female speaker), and Katingan /kaka-k/ 'elder sibling', /ñaha-i/ 'brother' (explicitly stated to be from the standpoint of a female speaker). Hudson's Katingan terms for 'elder parallel sibling' and 'brother of a woman', like the similar terms given by Hardeland, have different endings, but his Kapuas terms do not. These problems remain unresolved, but hardly cast serious doubt on the Ngaju Dayak contribution to the reconstruction of **ñaRa* and **betaw*.

Reflexes of PMP **hua(n)ji* (PAN **Suaji*) are quite varied, for the following reason. Although PAN **S* is preserved as a sibilant in most Formosan languages, outside Taiwan the initial consonant of **Suaji* has become /h/ in the central and southern Philippines, and disappeared almost everywhere else. Where it disappeared the resulting /u/ before a low vowel often semivocalised, yielding a historically secondary form **wa(n)ji* which then underwent the same changes as forms with original **w-* (e.g. Mentawai, with **w* > /b/, Rotinese, with **w* > /f/). In a few Philippine languages, particularly in Mindanao, the expected reflex inexplicably fails to show /u/ (e.g. Ata Manobo, where we would expect ***huari*, not the attested /hari/). Finally, as noted in Blust (1979), reflexes of PAN **Suaji* (and of various other kinship terms) sometimes contain a vocative prefix **t-*.

If cognate sets (1)-(4) are mapped onto the Austronesian family tree described in section 3.3, it is apparent that their prototypes must have been found in the common ancestor of the WMP and CMP languages (Proto Malayo-Polynesian). Our next task is to assign meanings to these four PMP forms.

One way to gloss PMP **betaw*, **ñaRa*, *kaka and **hua(n)ji* would be to count semantic reflexes and determine meaning by majority rule. This is essentially the approach of Marshall (1984), who concludes that Proto Oceanic (he does not use the term) made only a cross/parallel distinction in sibling terms, since this is numerically the most frequent pattern that he found in his data sample. As Bender (1984), Blust (1984a), Chowning (1984) and Clark (1984) have all pointed out, this analysis fails to explain why, if a relative age distinction did not exist in the parallel sibling category in Proto Oceanic, reflexes of POC **toka* (reference) or **kaka* (vocative) always indicate the elder sibling, and reflexes of POC **tansi* always indicate the younger sibling in terminologies which distinguish relative age among parallel siblings. In fact, Marshall's analysis completely ignores the well-known methodological distinction between typological comparison, which aims at the establishment of universal associations together with implicational relationships, and genetic comparison, which aims at the establishment of specific historical connections.

An alternative approach to glossing reconstructed forms which does pay close attention to the difference between the comparison of structural categories (= typological comparison) and the comparison of cognate forms, is that of Dyen and Aberle (1974). As noted in Blust (1987a) the Dyen-Aberle approach is not one in which semantic categories are reconstructed in the same sense in which phonemic forms are reconstructed. Rather, it is an approach in which reconstructed phonemic forms are matched with semantic categories that are given in

advance. Functionally, the most important concept in the Dyen-Aberle method is the concept of 'inclusion'. According to Dyen (in Dyen & Aberle 1974:17):

> If a candidate *c* appears in a list of subgroups L_1 in meaning M_1 and also in a different list of subgroups L_2 in meaning M_2, then if L_2 contains all of the subgroups of L_1 and at least one subgroup in addition, L_2 is said to include L_1; our practice is to say that the particular candidate *c* in M_2 INCLUDES the candidate *c* in M_1.

In more conventional language the Dyen-Aberle principle of inclusion maintains that if a reconstructed form has more than one semantic reflex that reflex which is found in a larger number of primary subgroups is to be assigned to it, while competing semantic reflexes which are found in a smaller number of primary subgroups are to be treated as innovations. Semantic reflexes which have an equivalent distribution over primary subgroups are said to be unincluded; all unincluded meanings are assigned to the reconstructed form that they reflect, no matter what the number of such meanings (Dyen & Aberle 1974:18).

Table 2 presents an array of sibling terms in Austronesian languages with whole glosses. To a greater or lesser extent all of these glosses encompass more than one category of kin. To ensure that the Dyen-Aberle approach receives due consideration Table 3 reformulates the material of Table 2 to highlight the distribution of candidate terms (CT) over primary sibling categories (PSC). Only common glosses (represented by the number in parentheses following the glosses in Table 2) are displayed in Table 3:

TABLE 3: DISTRIBUTION OF FOUR PMP CANDIDATE TERMS OVER PRIMARY SIBLING CATEGORIES

PSC (m.s.)	CT	WMP	CMP	OC
eB				
1	*betaw*	----	----	----
2	*ñaRa*	----	----	----
3	*kaka/aka*	4,5	4,5	5
4	*hua(n)ji*	----	----	----
yB				
1	*betaw*	----	----	----
2	*ñaRa*	----	----	----
3	*kaka/aka*	----	----	----
4	*hua(n)ji*	4,5	4,5	5
eZ				
1	*betaw*	1,2,3	2,3	----
2	*ñaRa*	----	3	----
3	*kaka/aka*	4	4	----
4	*hua(n)ji*	----	----	----
yZ				
1	*betaw*	1,2,3	2,3	----
2	*ñaRa*	----	3	----
3	*kaka/aka*	----	----	----
4	*hua(n)ji*	4	4	----

(w.s.)				
eB				
1	*betaw*	3	3	----
2	*ñaRa*	2	2,3	----
3	*kaka/aka*	4	4	----
4	*hua(n)ji*	----	----	----
yB				
1	*betaw*	3	3	----
2	*ñaRa*	2	2,3	----
3	*kaka/aka*	----	----	----
4	*hua(n)ji*	4	4	----
eZ				
1	*betaw*	1	----	----
2	*ñaRa*	----	----	----
3	*kaka/aka*	4,5	4,5	5
4	*hua(n)ji*	----	----	----
yZ				
1	*betaw*	1	----	----
2	*ñaRa*	----	----	----
3	*kaka/aka*	----	----	----
4	*hua(n)ji*	4,5	4,5	5

Applied to the data at hand the Dyen-Aberle approach to glossing reconstructed forms would require us to assign the following glosses to items (1)-(4): (1) **betaw* 'cross-sibling', supported by Toba Batak (WMP) and Alune (CMP); also 'Z (m.s.)', supported by Ngaju Dayak (WMP), and by many CMP reflexes; (2) **ñaRa* 'B (w.s.)', supported by Ngaju Dayak (WMP) and by many CMP reflexes; (3) **(k)aka* 'elder sibling of the same sex', supported by Ata Manobo, Toba Batak, Dairi-Pakpak Batak, Sangir and several CMP reflexes (also 'elder sibling', supported by Komodo, Ngadha, Solorese, Wetan, Paulohi, Soboyo and many WMP reflexes); and (4) **hua(n)ji* 'younger sibling of the same sex', supported by Ata Manobo, Toba Batak, Dairi-Pakpak Batak and several CMP reflexes (also 'younger sibling', supported by Komodo, Ngadha, Solorese, Wetan, Paulohi and many WMP reflexes). As I have argued elsewhere (Blust 1980b, 1987a) there are inherent limitations to the Dyen-Aberle method of "lexical reconstruction", which is concerned exclusively with what Saussure called the semantic "signification" of linguistic forms, as opposed to their semantic 'values'. As it happens, in this particular set of data the Dyen-Aberle approach comes closer to achieving satisfactory semantic coherence than is sometimes the case. However, it is evident that **betaw* could not have meant both 'cross-sibling' and 'Z (m.s.)', especially in view of the fact that the only gloss which can be assigned to **ñaRa* is 'B (w.s.)'. PMP **betaw* must have meant 'Z (m.s.)', and **ñaRa* 'B (w.s.)', as their reflexes still do in Ngaju Dayak and in many CMP languages extending from Komodo in the western Lesser Sunda Islands to the Sula Archipelago in the north-central Molucca Islands.

By contrast to PMP **betaw* and **ñaRa*, the meaning of PMP **kaka/aka* and **hua(n)ji* remains an unresolved issue. In past work I have tended to assume a model of lexical categorisation in which semantic space is exhaustively partitioned into mutually exclusive categories. Systems of sibling terminology such as that of the Ngaju Dayak appear to

contradict this model, since according to Hardeland (1859) NgD *betaw* means 'Z(m.s.)' and *ñahE* means 'B(w.s.)', but *kaka/aka* means 'eB' or 'eZ' and *andi* means 'yB' or 'yZ', without regard to sex of speaker (*pahari* means 'parallel sibling', without regard to relative age). In other words, some relationships may be expressed by two terms, presumably carrying different emphases (e.g. in Ngaju Dayak a man may call his eZ either *betaw*, emphasising the difference of sex, or *aka*, emphasising the difference of age, but may call his eB only *aka*). The difficulty with accepting this characterisation of the use of semantic space more generally is that the description of many terminologies in the literature is known to be inexplicit. For example, Koentjaraningrat (1972:82), drawing on an earlier report by Coolhaas, gives Manggarai *ka?e* as 'eB, FBS, MZS' and Manggarai *ase* as 'yB', but the more complete information provided by Verheijen (1970:100-101) and Gordon (1980:51-52) shows clearly that these terms are restricted to *parallel* siblings (and some other relationships not relevant to the present discussion). For these reasons I will leave open the question whether PMP **kaka/aka* and **hua(n)ji* applied exclusively to parallel siblings, or to siblings in general. In either case relative sex is a necessary component of the definition of PMP **betaw* and **ñaRa*, and the PMP system must, therefore, be classed as a further subtype of Murdock's (1968) "Melanesian, or Relative Sex Type" of sibling terminology.

Another issue that may be raised in connection with the foregoing reconstruction is its critical dependence upon the Ngaju Dayak evidence. Virtually all CMP-speaking societies for which information is available have a terminological contrast for parallel and cross-siblings, and the terms **betaw* and **ñaRa* can easily be reconstructed for Proto Central Malayo-Polynesian. As several writers have noted, however, the parallel/cross contrast is rare in societies that speak WMP languages. All four Ngaju Dayak terms are cognate with the sibling terms of such CMP languages as Rotinese, and have essentially the same semantic values. Neither chance nor borrowing offers a plausible explanation for this agreement, and we are therefore forced to conclude that the Ngaju Dayak system, rare as it is among WMP-speaking peoples today, must be a retention of a system of sibling terminology that was once much more widespread in the Philippines and western Indonesia. This inference receives tangential support from the terminological systems of the Batak peoples of northern Sumatra, where Toba Batak /i-boto/, Simalungun Batak /botow/ 'cross-sibling' preserve a reflex of **betaw*, albeit one that has undergone a widening of reference to include kin types that were originally subsumed by **betaw* and **ñaRa* together. A similar (historically independent) widening of reference is seen in Alune (CMP) /beta/ 'cross-sibling'. Finally, the Berawan dialect of Long Terawan in northern Sarawak preserves another component of the original meaning of **betaw* in the form /betaw/ 'sister' (Proctor 1979).[17]

Even with some indeterminacy regarding the scope of reference of PMP **kaka/aka* and **hua(n)ji*, the foregoing reconstruction of four PMP sibling terms distinguished by relative sex and relative age serves to remedy the muddled state of affairs found in Dempwolff (1938). Having said this it is legitimate to ask: "what have we achieved through this

[17] It is unclear whether this form is adequately glossed. When I worked briefly with a Long Terawan speaker during my fieldwork in northern Sarawak in 1971 I recorded only /tukeh/ 'elder sibling', /taréh/ 'younger sibling' and /padi?/ 'sibling (in general)'. Proctor's /betaw/ suggests that Long Terawan may in fact have a cross/parallel distinction in the sibling terminology that has until now gone unnoticed. The gloss that he provides for /betaw/ probably should be regarded as untrustworthy because of the all-pervasive gender bias that is commonly seen in the collection of kinship terms that make use of relative sex. Most fieldworkers, both anthropologists and linguists, are male, as are their informants. In such a situation if any cross-sibling term is collected one would expect it to be the term for 'Z (m.s.)'.

reconstruction towards understanding the evolution of social organisation in Austronesian-speaking societies over approximately the past five millenia?".

Murdock (1968) answers this question for us. In a globally representative sample of 800 societies selected from the ethnographic literature (mostly in English, German and French), he has isolated seven major types of sibling terminology. His Type F, the "Melanesian, or Relative Sex Type" shows a statistically significant positive correlation with the presence of descent groups (in particular matrilineal descent groups). The clear inference from his tables of correlations (especially his Table 2), is that Proto Malayo-Polynesian society had descent groups – that is, corporate kin groups defined in terms of an apical ancestor.

5.2 THE HISTORICALLY SECONDARY SIBLING TERMS

If the foregoing reconstruction of PMP sibling terms was all that could be achieved through comparative linguistics it would indisputably be of some value to ethnology, but it would not represent a major triumph of linguistic methodology in addressing diachronic problems of social anthropology. What makes the comparative study of sibling terms in Austronesian far more interesting and methodologically important is the existence of a second set of terms for the cross-siblings which is even more widespread than the reflexes of **betaw* and **ñaRa*. In some cases this second set of cross-sibling terms involves true cognates, but in others it involves only lexical items of similar semantic structure. For reasons that will become apparent, these terms can be characterised as semantically derivative or morphologically complex. Significantly, no such competing comparisons exist for the terminology relating to parallel siblings. Consider the material of Table 4, organised as in Table 2. Literal morpheme glosses, which are given in parentheses, are: M = male, F = female, C = child, x = cross-sibling. Reconstructed morphemes are: PMP **ma-Ruqanay* 'male', PMP **laki* 'male (probably originally of animals)', PMP **anak* 'child; member of a social group', PMP **bahi/ba-bahi/b-in-ahi/ba-b-in-ahi* 'female':[18] forms in square brackets are non-cognate, but exhibit a parallel semantic derivation.

TABLE 4: EVIDENCE FOR THE HISTORICALLY SECONDARY CROSS-SIBLING TERMS

(5) **(anak) bahi* 'Z (m.s.)'

WMP:
PHILIPPINES
Bontok *ka-babai-an* (F)
[Ilongot *bekur*] (F)
Maranao *bebai* (F)
[Tiruray *libun*] (F)

WESTERN INDONESIA
Malagasy *ana bavy* (CF)
[Middle Malay *kelaway*] (F)

[18] For the complex problem of reconstructing the PAN word for 'female' cf. Blust (1982c). Like the word for 'female', the word for 'male' can be reconstructed both as a simple stem and as an affixed form. Reflexes of the former include Paiwan /uqaLay/, Palauan /sechál/ and Manggarai /rona/ (all < **RuqaNay*); reflexes of the latter include Bintulu /manay/, Balinese /muani/, Sangir /mahuane/, Tae' /muane/, Kambera /mini/, Motu /maruane/, Mono-Alu /manuale/ (< Met.), Tongan /ŋaʔane/ and a number of other forms cited here as components of cross-sibling terms (all < **ma-RuqaNay*).

Bolaang Mongondow *bobai* (F)
[Tae' *anak dara*][19]

CMP:
Sika *whine* (F)
Adonara *bine* (F)
Kambera *ana wini* (CF)
Savu *na weni* (CF)
[Leti *narapuate*] (xF)

OC:
Bileki *hata vile* (xF)
Bangasa *vivini* (F)
Eromanga *veven* (F)
Trukese *feefiney* (F)
Tongan *tuo fefine* (xF)
Hawaiian *kua hine* (xF)

(6) **(anak) ma-Ruqanay* 'B (w.s.)'

WMP:

PHILIPPINES
Bontok *ka-lalaki-an* (M)
Ilongot *raki* (M)
Maranao *laki* (M)
Tiruray *lagey* (M)

WESTERN INDONESIA
Malagasy *ana dahy* (CM)
Middle Malay *moanay* (M)
Bolaang Mongondow *lolaki* (M)
Tae' *anak muane* (CM)

CMP:
Kambera *ana mini* (CM)
Savu *na mone* (CM)
Leti *nara muani* (xM)

OC:
Bileki *hata male* (xM)
Bangasa *mani* (M)
Eromanga *man* (M)
Trukese *mwääni* (M)
Tongan *tuo ŋaʔane* (xM)
Hawaiian *kua nane* (xM)

Some of the above terms contain cognate morphemes. Thus, for Proto Philippines it appears safe to reconstruct **babahi* 'Z (m.s.)' and **laki* 'B (w.s.)', based on cognate forms in the Cordilleran languages of northern Luzon and Maranao of southern Mindanao (with further support for the second term from Tiruray). Similarly, for Proto Oceanic, Milke

[19] Literally 'child' + 'virgin/maiden'.

(1938) reconstructed **vavine* 'Z (m.s.)', **mane* 'B (w.s.)', based on widely distributed cognates in the Oceanic languages.

At the Proto Malayo-Polynesian level, however, the reconstruction of such semantically derivative or morphologically complex alternative terms becomes more problematic. It is prima facie plausible to posit **anak ma-Ruqanay* 'B (w.s.)', based on Tae' (WMP) /anak muane/ and Kambera (CMP) /ana mini/. For many of the other terms, however, there is a lack of true cognation, as with the Malagasy terms /ana bavy/ 'Z (m.s.)', /ana dahy/ 'B (w.s.)', next to Kambera /ana wini/ 'Z (m.s.)', /ana mini/ 'B (w.s.)'. Rather than true cognation what these terms share is a common semantic history, that is, a historical derivation from terms the primary sense of which is 'male/female', or the morpheme meaning 'child' plus one of these gender modifiers. The former, semantically derivative type, based on the morphemes meaning 'male' or 'female', includes WMP, CMP and OC languages, while the latter, morphologically complex type ('child' + 'male/female') includes only WMP and CMP languages. In either case the material in Table 4 presents us with terms that compete with the monomorphemic and semantically derivative cross-sibling terms that have already been proposed. Following the Dyen-Aberle method of lexical reconstruction, but my subgrouping of Austronesian, we would be forced to reconstruct both PMP **betaw* and **(anak) bahi* in the meaning 'Z(m.s.)', and both PMP **ñaRa* and **(anak) ma-Ruqanay/laki* in the meaning 'B(w.s.)'. If WMP and CMP languages are assigned to a single subgroup coordinate with Oceanic, as proposed by Dyen (1985), these semantically derivative and morphologically complex forms become the sole PMP candidates for the meanings 'Z(m.s.)' and 'B(w.s.)'.

The first point to note about comparisons (5) and (6) is that they provide an independent line of evidence indicating a cross/parallel distinction in the sibling terminology of Proto Malayo-Polynesian, hence strengthening our inference that descent groups were present in PMP society.

The second point to note about comparisons (5) and (6) is that they are either semantically derivative (derived from terms that carry the primary sense 'male/female') or morphologically complex. While the extension of terms that carry the primary sense 'male/female' to 'B/Z' is not surprising, the similar extension of terms that include the morpheme 'child' certainly is. Indeed, there is no obvious social structural reason why a reflex of PMP **anak* 'child' would form part of any sibling term. I will refer to the seeming obscurity of this historical derivation as a problem of 'morphological opacity'.

The third point to note about comparisons (5) and (6) is that when reflexes of **anak* plus an apparent gender modifier are possessed it becomes clear that they do not have a head-modifier structure. For Tae', van der Veen (1940:17ff.) cites /anak muane-na/ 'her brother', but /anak-ku muane/ 'my son ' (cf. /anak-na tau/ 'someone else's child' as evidence that the first and third person singular possessive markers do not differ positionally). Fischer (1957:5, note), citing Onvlee, makes a parallel observation about Kambera: "Referring to a brother the words *ana* and *mini* are seen as an inseparable whole, while as an indication for a son they are two. A woman speaking of her brother will say *anaminiŋgu* (= 'my brother') while speaking of her son she will use the possessive form *anaŋgu mini*, my son". Together these observations on the syntax of possession in Tae' (a WMP language), and Kambera (a CMP language) show unmistakeably that PMP **anak ma-Ruqanay* had two functions: (1) it was a head-modifier construction meaning 'son', and (2) it was a syntactic unit with some other, as yet undetermined, meaning.

The fourth point to note about comparisons (5) and (6) is that they are found scattered among reflexes of **ñaRa* and **betaw* in languages that are either closely related, or neighbours, or both. Thus Waijewa (west Sumba) has /woto/, /na?a/, while Memboro (north-west Sumba) has /ana wini/, /ana moni/ for the female and male cross-siblings respectively, and similarly with Roti /feto/, /na/ next to Savu /ana weni/, /ana mone/.[20] In the most extreme cases several of the languages of eastern Flores and the Solor Archipelago have one term from each system, as with Sika /nara/ 'B (w.s.)', but /wine/ 'Z (m.s.)' and Solorese /naa/ 'B (w.s.)', but /bine/ 'Z (m.s.)'.

The final point that I wish to make in this section is that no attested Austronesian-speaking society is known to have more than one term for either of the cross-siblings. To attribute both **ñaRa* and **anak ma-Ruqanay* to Proto Malayo-Polynesian in the meaning 'B (w.s.)' would be to posit a duplication of terms with the same semantic value that is unprecedented in any of the languages accessible to direct observation. Moreover, although **betaw* is reflected with the meaning 'female' in some of the languages of the Lesser Sunda Islands the primary meaning of PMP **ñaRa* and **betaw* clearly was 'B (w.s.)' and 'Z (m.s.)'. In this sense these terms can be considered as semantically non-derivative. The matter is, of course, very different with the second set of cross-sibling terms, which have as their primary meaning either 'male/female' or a compound term containing a reflex of **anak* 'child' plus 'male' or 'female'.

To conclude, despite the widespread occurrence of semantically derivative cross-sibling terms in Austronesian languages, I find no convincing basis for reconstructing forms with the semantic structure 'male/female' or 'child' + 'male/female' as cross-sibling terms in Proto Malayo-Polynesian. The total absence of attested languages with more than one set of cross-sibling terms, and the semantically derivative or morphologically complex character of the forms subsumed under comparisons (5) and (6) strongly suggests that these terms have arisen independently in the meaning 'cross-sibling'. But if so, what is their historical source, and what was the dynamic that drove the speakers of widely separated languages to follow similar paths of replacing **ñaRa* and **betaw* with terms that must earlier have had some other referent?

6. THE CROSS-SIBLING SUBSTITUTION DRIFTS

Terms for the wife-giving and wife-taking groups are known for only a small number of societies that are reported to practice asymmetric alliance. Where they are known, however, they exhibit an interesting correspondence to the terms for cross-siblings. Examples are:

(1) KARO BATAK (northern Sumatra): /kalimbubu/ 'wife-givers' (no other clearly related meaning known); /anak beru/ (lit. 'child' + 'female') = 'wife-takers' (Neumann 1951, Singarimbun 1975, Needham 1978)

(2) DAIRI-PAKPAK BATAK (northern Sumatra): /kula kula/ 'wife-givers' (no other clearly related meaning known); /anak hamberu/ (lit. 'child' + 'daughter') = 'wife-takers' (Manik 1977)

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[20] Needham (1980) writes Veveva and Mamboru for Waijewa and Memboro in Fischer (1957) and the older Dutch sources. His map of the Sumbanese principalities (p.23) shows the centre of the Veveva and Mamboru domains to be only some 30 km. apart, while their borders, separated by the tiny principality of Tana Rivu, come to within 3 or 4 km. of one another.

(3) MANGGARAI (west Flores): /anak rona/ (lit. 'child' + 'male') = 'wife-givers'; /anak wina/ (lit. 'child' + 'female') = 'wife-takers' (Gordon 1980)

(4) ATONI (west Timor): /an mone/ (lit. 'child' + 'male') = 'wife-givers'; /an feto/ (lit. 'child' + 'female') = 'wife-takers' (Cunningham 1964)

(5) TETUN (central Timor): /umah manéh/ (lit. 'house' + 'male') = 'wife-givers'; /fettoh sawa/ (lit. 'girdle' + 'female') = 'wife-takers' (van Wouden 1968:14)

(6) HUAULU (north coast of Seram): /hahamana/ (lit. 'veranda' + 'male') = 'wife-givers'; /hahapina/ (lit. 'veranda' + 'female') = 'wife-takers' (Valeri 1980)

Surely this correspondence of morphologically transparent terminology for affinal groups involved in asymmetric alliance and of morphologically opaque terminology for cross-siblings cannot be accidental. But if not, what is its significance for the problem at hand?

Basically three alternatives are available: (1) treat the resemblance as coincidental, (2) assume that cross-sibling terms with the semantic structure 'male/female' or 'child' plus 'male/female' were historically transferred to the affinal groups in some societies that practiced asymmetric alliance, or (3) assume that terms with the semantic structure 'male/female' or 'child' + 'male/female' which designated the affinal groups in systems of asymmetric alliance came to apply instead to the cross-siblings.

Alternative (1) would provide no satisfactory explanation for what is clearly a greater-than-chance similarity between terms that refer to the most pivotal relationships in systems of matrilateral cousin marriage, the first on the level of the individual, the second on the level of the social group.[21]

Alternative (2) again raises two questions: (1) why there are multiple PMP terms for the cross-siblings, when no daughter language has more than one term for either relationship, and (2) why terms would be innovated in meanings for which they are semantically unmotivated ('child' + 'male/female' for the cross-siblings) and then transferred to meanings for which they *are* semantically motivated.

Alternative (3) avoids both the problem of synonymy and the problem of morphological opacity. Apart from these negative advantages alternative (3) is also positively motivated. Reference to Table 1 shows that in dual symbolic classifications generally wife-givers are conceptually aligned with 'male' and 'superior', while wife-takers are conceptually aligned with 'female' and 'inferior'. As the sources clearly indicate, 'male' and 'female' in such classificatory schemas are to be understood as *symbolic categories*, not as sexual references. The wife-givers are thus 'male' even though they are the givers of women, and thus belong to the lineage of the wife. For the terminology relating to affinal groups to be applied to the cross-siblings, however, we must assume a transfer of group viewpoint from the individual participants in a marriage to their brother-sister parents. But how could such a transfer of viewpoint come about?

Fortunately, we need not resort to speculation about the native participant viewpoint in order to answer this question and thereby solve a major problem in understanding the history of sibling terminology in Austronesian languages. The answer rather is provided in the

[21] Robin Fox (1967:236) regards "the fate of the brother-sister bond as in some ways 'central' to the elaboration of kinship systems". The evidence for the cross-sibling substitution drifts in Austronesian languages supports this statement entirely, at least in so far as it applies to systems of asymmetric alliance.

careful ethnographic work that has been done on CMP-speaking societies in recent years. Regarding the terms for wife-giving and wife-taking groups among the Huaulu of Seram, Valeri (1980:185) has the following to say:

> Literally, "hahamana" means "male veranda"; "hahapina", "female veranda". "Veranda" here is a synecdoche for "house" (*luma*): it symbolises the social group associated with the luma in its relationship to another group, since the veranda is the part of the house reserved for social encounters. Like most peoples in central Seram, the Huaulu connote this opposition by the categorical opposition between "children of the brother (that is, hahamana)" and "children of the sister (hahapina)." This is quite logical, since otherwise the symbolic identification of the wife-givers with the male side would be absurd: if the hahamana/hahapina relationship were conceptualised, not in terms of the brother/sister relationship, but in terms of the affinal relationship between wife and husband, the wife-givers side would be female, not male. As a matter of fact, the point of view is that of a brother: the male sibling stays with his paternal lineage, the female sibling is given away; male children stay with their father, female children are married out. Not surprisingly, "hahamana" is also glossed "male child" and "hahapina" "female child." It is evident that in native conceptualisation the wife-giving/wife-taking relationship is subsumed under more fundamental relationships: children of the brother/children of the sister, brother/sister, and finally, male/female.

This quotation from Valeri could hardly be clearer or more appropriate to our purpose. If the 'extra' set of cross-sibling terms that we have discovered did not refer to cross-siblings in Proto Malayo-Polynesian (since **betaw* and **ñaRa* had those meanings) they must have had some other meaning. The only other meaning that can be attributed to them is that of the affinal groups to which they refer in attested systems of asymmetric alliance. That this was the probable direction of semantic change (from 'WG' to 'B (w.s.)' and from 'WT' to 'Z (m.s.)') is made more likely by the alignment of wife-givers with 'male' and of wife-takers with 'female' in the dual symbolic classifications of these same societies. Those terms which reflect **anak* plus a gender qualifier are glossed by Fox (1980c:333) as 'children of the brother' (= wife-givers) and 'children of the sister' (= wife-takers). They could as easily be glossed 'member of the male group' and 'member of the female group', since PMP **anak* is widely reflected not only in the literal sense 'child', but also in the wider sense 'member of a (social, occupational, etc.) group'.[22]

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[22] In addition to the names of wife-givers and wife-takers noted at the beginning of this section, compare, for example, Malay *anak kapal* (= 'child' + 'ship') 'crewmember of a ship', Old Javanese *anak wanwa* (= 'child' + 'inhabited place') 'person belonging to the *wanwa* community', Erai *ana ili* (= 'child' + 'village') 'villagers', and the non-cognate but structurally parallel Hawaiian *kama?āina* (= 'child' + 'land') 'native-born'. In view of this range of meanings Needham (pers.comm.) questions whether **anak* should be glossed 'child', or should rather be given a more general gloss such as 'junior associate' or 'minor complement'. In effect he denies any special value to the meaning 'child' as opposed to other meanings with which it shares a category membership. The basic problem with his position is that it fails to explain why the category membership associated with reflexes of **anak* may show considerable cross-linguistic variation, yet the category itself is invariably recognised by its inclusion of the meaning 'child'. With respect to the morphologically complex terms, Needham (1978:118) renders Karo Batak *anak beru* as 'people of the woman,' 'the woman's people,' or 'one's daughter's (or sister's) family.' I regard this as preferable to Fox's translation of cross-sibling terms of similar semantic structure in eastern Indonesia, since it recognises that *anak* is not to be translated literally as 'child'. However, both Fox and Needham translate 'male' and 'female' as literal sexual references rather than as labels in a dual

Before concluding it will be well for us to take stock of what the comparative study of sibling terms has enabled us to infer about the history of social change in Austronesian-speaking societies. Firstly, terms such as Kambera (eastern Sumba) /ana mini/ 'B (w.s.)', /ana wini/ 'Z (m.s.)' and Memboro (north-west Sumba) /ana moni/ 'B (w.s.)', /ana wini/ 'Z (m.s.)' reflect PMP expressions which almost certainly did not refer to the cross-siblings, but rather to the wife-giving and wife-taking groups in a system of asymmetric alliance. When they came to be applied instead to the cross-siblings, they replaced the reflexes of PMP **ñaRa* and **betaw* which are still retained in such closely related languages as that of Waijewa (west Sumba), which has /na?a/ 'B (w.s.)' and /woto/ 'Z (m.s.)'.

Many social anthropologists and ethnologists with an interest in comparative questions will no doubt be willing to grant this much. But how without a serious breach of method can we stop here? If the societies of eastern Sumba and Savu have acquired new cross-sibling terms from the terms for affinal groups how are we to explain the parallel terminological innovations in various languages of the northern and southern Philippines, in Malagasy, in Middle Malay, in Sangir, in southern Toraja (Tae') and other languages of Sulawesi, and in Proto Oceanic, the ancestor of some 450 modern Austronesian languages? Unlike the situation among CMP-speaking groups, where MBD marriage is common, none of these societies have had systems of asymmetric alliance within the ethnographic present. How can the innovative terms for cross-siblings be explained from earlier terms for wife-givers and wife-takers if wife-giving and wife-taking corporate groups do not now exist in these societies?

Linguists will not find the general form of this question difficult, since some of the classical discoveries in Indo-European linguistics involved the use of observations about one language to explain observations in another. Grimm's Law, as it was initially formulated, contained many apparent exceptions. Verner's Law explained a large number of these as regular developments by demonstrating that the Germanic languages had retained Proto Indo-European contrastive accent at the time of the First Germanic Consonant Shift. Yet no attested Germanic language (including the extinct Gothic, and Old Norse, for which historical texts are available) retains the original accent pattern, which was inferred largely from agreements between Sanskrit and Greek. What the Germanic languages show is rather the traces of an earlier accent system as it affected the development of adjacent consonants perhaps 2,500 years ago. To echo the form of the question at the conclusion of the preceding paragraph, we might equally well ask: How can Verner's Law explain any exception to Grimm's Law if the Proto Indo-European accent has not been preserved in any attested Germanic language?

Returning to the original question, there is no easy answer unless we propose that at the time of terminological transfer the societies in question practised asymmetric alliance. Without such a hypothesis there is no explanation for the appearance of an 'extra' set of cross-sibling terms without a corresponding 'extra' set of parallel sibling terms. Moreover, it is clear that the reflexes of PMP **ñaRa* and **betaw* were replaced independently in such CMP languages as Kambera or Memboro of Sumba and in such WMP languages as Bontok, Malagasy or Tae'. In other words, the historical shift of reference from wife-giving and wife-taking group to the cross-siblings was a *drift* – a change that took place independently

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symbolic classification (see Table 1). Under this interpretation a usage such as Dairi-Pakpak Batak *anak hamberu* (lit. 'child' + 'daughter' [= Karo Batak *beru* 'female']) 'address of a woman to her husband' is unintelligible, yet the personal dyads B-Z, W-H, BD-FZ and MB-ZS can each be seen as manifesting the opposition of wife-giving and wife-taking lineages.

and recurrently in a number of societies over the millenia as the Austronesian-speaking peoples separated and diversified from a common ancestral community. These changes, which we can call the 'cross-sibling substitution drifts', show unmistakeably that the motor of linguistic drift need not be limited to the persistent operation of inherited structural pressures in language. Rather, linguistic drift can be also be powered by the persistent operation of inherited structural pressures in social organisation.

7. OBJECTIONS AND ALTERNATIVES

At the very least, anyone who wishes to object to the foregoing proposals must provide alternative answers to the following questions: (1) Why, next to reflexes of PMP **ñaRa* and **betaw*, do we find reflexes of an 'extra' set of cross-sibling terms in a number of WMP, CMP and OC languages when: (a) only one set of reflexes is found for the parallel sibling terms, and (b) no attested language has more than one set of terms for the cross-siblings?; (2) Why is this extra set of terms semantically derivative (primary sense = 'male/female') or morphologically complex (primary sense = 'child/member of social group' + 'male/female'), while **ñaRa* and **betaw* are semantically primary and morphologically simple?; (3) Why would this extra set of terms evolve independently in a number of widely scattered languages?; and (4) Why are terms of parallel semantic structure ('child/member of a social group' + 'male/female') found in the meanings 'wife-giver' and 'wife-taker' both in WMP and in CMP languages? Needless to say, any set of alternative answers to these questions should form part of a coherent theory of the evolution of social organisation in the Austronesian-speaking world.

One objection that is likely to be raised against the claim that PMP society practised asymmetric alliance comes from what might be called the 'internal logic' of kinship systems. In any society with exclusive matrilateral cross-cousin marriage certain terminological equations are to be expected (e.g. MB=WF, MBS=WB), while others are not (e.g. MB=HF, MB=FZH). This is not the place for me to attempt a reconstruction of the entire set of PMP kinship terms; indeed, the force of my argument requires no reconstructed terminology beyond the sibling terms themselves. Nonetheless, given the probability that terminological incompatibilities will present an issue it might be worthwhile to briefly consider one additional cognate set which was the subject of some debate in reactions to Blust (1980b).

Blust (1980b:213) reconstructed PMP **ma(n)tuqa* (now written **ma-tuqah*) with the meanings 'MB', 'WF', adding in a footnote 'Possibly also WM, HF, HM'. Aberle (1980:228) correctly pointed out that the evidence cited in Blust (1980b) actually supports an association of PMP **ma-tuqah* with *all four* affinal meanings, as well as 'MB'. He then added "Yet in a system of prescriptive alliance one expects only the equation of MB and WF, if the terminology reflects MBD marriage. If, on the other hand, MB is equated with WF and HF the result is compatible with symmetric rather than asymmetric exchange, while the equation of MB and spouse's mother is anomalous under either hypothesis".

It is important to recognise that application of the Dyen/Aberle procedures simply maps a reconstructed morpheme ('candidate') onto those universal kin categories which are associated with its 'unincluded' reflexes. The result may be a concatenation of kin categories which is unlikely to form a genealogical category in any natural language. When such a result is obtained from mechanical application of the procedures it must be subjected to further analysis. In the case at hand reflexes of PMP **ma-tuqah* are associated with 'MB' in WMP,

CMP and OC languages, and with 'WF', 'WM', 'HF', 'HM' in WMP and CMP languages. Given the subgrouping which I adopt (section 3.3), it follows mechanically that **ma-tuqah* must be glossed 'MB', 'WF', 'WM', 'HF', 'HM'. Needless to say, such a concatenation of categories is the product of comparing often incomplete sources, and may contain both too little and too much. Indeed, it is clear that the substring 'MB=WF=WM' logically entails 'MBW', and so expands to 'MB=WF=MBW=WM'.

Even without the foregoing caveat, closer attention to the material in Blust (1980b:213, Table 4) shows that next to the meanings that Aberle associates with PMP **ma-tuqah* we must also associate the more restricted set of glosses 'MB', 'WF', 'WM', since *matua* in Nias (WMP) and *tu?a* in some dialects of Manggarai (CMP) mean 'WF', 'WM', but do not refer to the parents-in-law of a woman. Although Dyen and Aberle (1974) treat the role of inclusion in lexical reconstruction at some length, I find no discussion of how they treat two unincluded candidates when one of these is semantically a subset of the other (as **ma-tuqah* 'MB=WF=MBW=WM' is to **ma-tuqah* 'MB=WF=MBW=WM=FZH=HF=FZ=HM').The only guiding principle which they make explicit (p.18) is that "an unincluded candidate is inferred to have had...the meaning of the list in which it is found". In accordance with this principle the Dyen-Aberle method requires not the reconstruction PMP **ma-tuqah* 'MB=WF=MBW=WM=FZH=HF=FZ=HM', but *both* this meaning and 'MB=WF=MBW=WM'.

Although he subsequently dismisses not only my conclusions, but also his own on the grounds that "the subgrouping is not justified" (1980:230), Aberle's inference of symmetric alliance can in any case be justified only in part, since the evidence from PMP **ma-tuqah* actually is contradictory, supporting both an inference of symmetric alliance *and* an inference of asymmetric alliance.[23]

Aberle's objections raise two interrelated questions: (1) Do kinship terminology and behaviour always reflect one another? (2) If not, can comparative linguistics resolve any issues in the reconstruction of prehistoric social organisation? Needham (1967, 1984) has argued for an evolution from symmetric to asymmetric terminology in the societies of the Lesser Sunda Islands of eastern Indonesia. His principle argument is that the "transformation" of a symmetric to an asymmetric system is inherently unlikely because (1984:229):

> ...the normal development of social forms is in the direction of increasing intricacy. For an asymmetric system to change into a symmetric system would involve a reduction in the number of terms, and a reduction in the number of lines from three to two. This is a transformation in the direction of economy of means and simplicity of structure; it is not formally self-contradictory or otherwise invalid, but it is empirically improbable. It would mean the abolition of terminological distinctions, in the medial three genealogical levels at least, in

[23] Dyen (1985:365, 388) similarly objects to the reconstruction of PMP **ma-tuqah* 'MB/WF', but on different grounds, claiming (p.365) that "Each meaning is found in a separate branch of PMP: the first in Proto Oceanic (PO) and the second in Proto Western Malayo-Polynesian". Entirely apart from our disagreement over the methodological issues associated with what he calls "single witness" comparisons (called "no candidate" comparisons in Blust 1987a), Dyen's statement can only be made by ignoring the WMP reflexes of **ma-tuqah* which are associated with the meaning 'MB' (Blust 1980b, Table 4), and the considerable evidence for a Central-Eastern Malayo-Polynesian subgroup (Blust 1974a, 1983-1984b, 1993).

> favour of equivalences. This is an operation of which, so far as I can discover, there are no well-attested ethnographic instances.

Needham's claim regarding the development of social forms "in the direction of increasing intricacy" expresses an implicit theory of unilinear evolution. In this sense his views are not unlike those of Brown (1984), who maintains that the evolution of terminological systems in language is towards an ever increasing number of general category distinctions, correlated with an ever increasing scale of societal complexity. Just as Brown's evolutionary arguments are dubious (Blust 1985), so are Needham's. In fact, Needham provides no concrete evidence for his assertion, maintaining simply that its converse "is empirically improbable".[24]

Although he offers no developed argument in support of his claim, Needham's "normal development of social forms" makes an explicit linguistic prediction: the change from symmetric to asymmetric terminologies requires terminological *innovations* to fill the increasing number of distinctions that must be recognised in a (minimally) three-line system arising from an earlier two-line system. In particular, the equivalences FZ=WM, and FZH=WF in a two-line system become non-equivalences in a three-line system, creating a need for new terms in the meanings FZ and FZH. I am aware of four cognate sets on the PMP level which evidently referred to kin of the parental generation. The reconstructions to which these can be assigned are: (1) **ina*, (2) **ama*, (3) **ma-tuqah*, and (4) **aya*. Table 5 sets out the glosses which I propose for these terms:

TABLE 5: PMP CONSANGUINEAL AND AFFINAL TERMINOLOGY FOR THE PARENTAL GENERATION

Term	Meanings
**ina*	M, MZ, FBW
**ama*	F, FB, MZH
**ma-tuqah*	MB, MBW, (WF), (WM)
**aya*	FZ, FZH, (HF), (HM)

The glosses assigned to PMP **ina* and **ama* require little justification, as they are almost universally supported in Austronesian languages. As noted in Blust (1980b), both **ma-tuqah* and **aya* clearly referred to relatives of the parental generation. The former is widely reflected in Oceanic languages in the meaning 'MB', and was reconstructed for Proto Oceanic in this meaning by Milke (1958). Similar meanings appear in some CMP languages, as with Manggarai /tuʔa ata rona/ 'MB' and Fordat /dua/ 'owner, sir, master; MB (in so far as he is empowered to oversee his ZC)', and a wider avuncular reference appears in such WMP languages as Mukah (Sarawak) /tuaʔ/ 'FB, MB, FZH, MZH'. On the other hand, **ma-tuqah* is reflected in the meaning 'WF, WM, HF, HM' both in WMP and in CMP languages. In attempting to reconcile these glosses with a single reconstructed morpheme a conflict arises. The gloss 'MB, MBW, WF, WM, HF, HM' is consistent neither with asymmetric nor with symmetric exchange, since the former would exclude 'HF, HM' (hence: 'MB, MBW, WF, WM') and the latter would include 'FZ, FZH' (hence: 'MB,

[24] Allen (1989) proposes a more general model of semantic evolution which predicts that symmetric terminolgies must precede asymmetric terminologies. His concern is with the evolution of kinship terminologies throughout the span of human history rather than with the more recent evolution of kinship terminologies within the context of particular language families. Although claims about longer evolutionary trends presumably would hold true for shorter evolutionary trends as well (since in his model the course of change is unidirectional), he does not directly address any set of real data.

MBW, WF, WM, HF, HM, FZ, FZH'). But it is evident that we must also reconstruct PMP **aya* as a kin term of the parental generation, and this contributes to a resolution of the meaning of **ma-tuqah*. Unlike PMP **ma-tuqah*, reflexes of **aya* have no known affinal senses. As noted in Blust (1980b) this difference in semantic profile between reflexes of the two terms almost certainly is due to the dominance of male viewpoint in the historical evolution of kinship terms that make use of a parameter of relative sex. Although both **ma-tuqah* and **aya* were affinal terms, the former meant 'parent-in-law' only to a male speaker, and the latter only to a female speaker. Most reflexes of **aya* mean either 'mother' or 'father'. In this sense they are fundamentally different from reflexes of **ina* (which is never reflected in the meaning 'father'), **ama* (which is never reflected in the meaning 'mother'), and **ma-tuqah*, which shows no traces of sexual polarity. Since a terminology of symmetric exchange requires only a single term for parental cross-siblings, their spouses, and the parents-in-law of Ego, Needham's hypothesis of a general evolution from symmetric to asymmetric terminologies clearly is inconsistent with the available linguistic evidence (some of which has been in print for over a decade).[25]

Despite this criticism Needham (1984) is a valuable contribution in a number of respects. In his paper Needham examines the terminologies of 15 societies in the Lesser Sunda Islands of eastern Indonesia. He finds that seven of these are consistently and unambiguously symmetric (2) or asymmetric (5), while the remaining eight are inconsistent, ambiguous or otherwise problematic. In all, eight of the 15 terminologies show some symmetric features. Despite these terminological differences all 15 societies practise (or traditionally practised) asymmetric alliance. Since changes in terminology are likely to lag behind changes in social organisation Needham sees in this inconsistency between terminology and behaviour further support for his inference of an evolution from symmetric to asymmetric terminologies, and by implication a parallel evolution from symmetric to asymmetric exchange.

But if terminology and behaviour do not reflect one another in half of the societies in Needham's sample, how can we be sure that they did in Proto Malayo-Polynesian? The conclusion to be drawn from Needham's data in conjunction with the cross-sibling substitution drifts is that asymmetric alliance *as a system of social organisation* is inferrable for PMP regardless of the terminological system that we reconstruct. Far from being a cause for discouragement, the lack of correspondence between terminology and behaviour in attested societies need not stand in the way of inferences about earlier forms of social organisation that are based on the study of cognate terminology. The power of the comparative method of linguistics is that inferences supported by it need not be restricted to 'horizontal' relationships within a reconstructed system, but include 'vertical' relationships

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25 Despite our differences on several important points of method, Aberle (1980:229) agrees that PMP **aya* probably meant 'FZ'. The evidence necessary to reach this conclusion through the procedures which he regards as indispensable is contained in: (WMP) Western Bukidnon Manobo /aya-ʔ/ 'MZ, FZ', Seru /aya/ 'MZ, FZ, MB, FB'; (CMP) Sika /ʔaa/ 'FZ', Moa /yei/ 'MB, FB'; (OC) Motu /lala/ 'FZ', Dobu /yaia-na/ 'all females of the first generation ascendant of father's village' (Fortune 1963[1932]:37). Even without these direct indications of a reference to the paternal aunt I believe the inference of PMP **aya* 'FZ, FZH' would be forced by four considerations: (1) the term **aya* must be reconstructed for PMP and assigned a gloss; (2) the gloss must refer to a relative of the parental generation; (3) this relative cannot have been either parent (since **ina* meant 'mother' and **ama* meant 'father', and reflexes of these terms invariably refer to the *same* parent without cross-over of sex); and (4) this relative cannot have been the maternal uncle, since **aya* is never reflected in that meaning. Both by a process of elimination, and by attempting to come to terms with the fact that reflexes refer with almost equal frequency to a female and to a male relative, we are then left with no reasonable alternative to the conclusion that PMP **aya* meant 'FZ, FZH'.

arising from the comparison of heterosemantic cognates. If it was the case that speakers of Proto Malayo-Polynesian practised symmetric rather than asymmetric alliance we would have no theoretical basis for explaining the peculiar set of observations that I have labelled the 'cross-sibling substitution drifts', since these require the persistence over many generations of a system of marital alliance characterised by descent group hierarchy ('male/superior/wife-givers' vs 'female/inferior/wife-takers'). These remarkable linguistic developments would, in effect, become a drift without a motive force, a collection of surprising parallel changes that have no statable cause.

Finally, the objection may be raised that I propose no concrete steps to show how a system of asymmetric alliance could evolve into any of the other types of social organisation which are found among Austronesian-speaking peoples today. As a linguist I make no claims to expertise in kinship theory. While I am able to propose a dynamic of terminological change, I do not feel that it is my place to propose a dynamic of social change; this is, after all, the domain of the social anthropologist. In a similar vein, Forth (1990) engages in linguistic comparison, but excuses himself from proposing reconstructions (and hence explicitly accounting for sound correspondences) on the grounds that he is not a linguist. In attempting the reconstruction of linguistic forms and their meanings all that I feel obligated to address is the reconstructed baseline to which an evolutionary hypothesis might apply. As with an earlier proposal which reconstructed matrilineal descent as the predecessor of the presently patrilineal societies of the south-eastern Solomon Islands (Blust 1986-87), I leave it to the social anthropologist to work out the mechanisms through which the reconstructed system evolved into its descendant forms.

APPENDIX

Because the sibling terminologies discussed in the body of this paper are displayed in cognate sets, they do not appear as integral wholes. To facilitate easy reference this appendix presents the full sets of sibling terms for all languages mentioned in the text which make use of a parameter of relative sex. This serves to show at a glance that Murdock (1968) not only underestimated the extent to which relative sex terminologies occur in the Philippines and western Indonesia, but also failed to recognise that similar systems must be reconstructed for Proto Philippines (**laki* 'B (w.s.)', **ba-bahi* 'Z (m.s.)'), and for Proto Malayo-Polynesian (**ñaRa* 'B (w.s.)', **betaw* 'Z (m.s.)'). For reasons of space (and because little would be gained from doing so) I do not consider the extension of these terms to collateral relatives.

The type of sibling terminology that I attribute to Proto Malayo-Polynesian corresponds to Type 12 in Nerlove and Romney (1967), with the proviso that the elder/younger terms may have applied to cross-siblings as well as to parallel siblings. Although Murdock (1968:7) reportedly consulted sources for 104 societies which speak "Malayo-Polynesian" languages, it is noteworthy that he does not mention this structure at all among the four varieties that he subsumes under his Type F, the "Melanesian, or Relative Sex Type". There are two explanations for this curious oversight. Firstly, as he himself notes (1968:1), his coverage of eastern Indonesia is inadequate. More seriously, however, Murdock overlooked the existence of a relative sex parameter in the sibling terminology of a number of WMP-speaking societies because (like most social anthropologists) he failed to use available linguistic sources, as opposed to ethnographic sources. The possible excuse that linguistic sources are likely to be less accurate than ethnographic sources in glossing kinship terminology simply does not bear close scrutiny. Among linguistic sources that provide

explicit evidence of a relative sex distinction in the sibling terminology of WMP languages are: (1) Reid (1976) for Bontok of northern Luzon, (2) McKaughan and Macaraya (1967) for Maranao, (3) Elkins (1968) for Western Bukidnon Manobo, (4) Schlegel (1971) for Tiruray, all of southern Mindanao, Philippines, (5) Hardeland (1859) for Ngaju Dayak of south-east Borneo, (6) Richardson (1885) for Malagasy, (7) Warneck (1977[1906]) for Toba Batak of northern Sumatra, (8) Helfrich (1904) for Middle Malay of eastern Sumatra, (9) Steller and Aebersold (1959) for Sangir of northern Sulawesi, (10) Dunnebier (1951) for Bolaang Mongondow of north-central Sulawesi, and (11) van der Veen (1940) for southern Toraja of central Sulawesi. Although some of these sources were not available when Murdock published his study, more than half of them were. As Fox (1988b:38) has pointed out, Kroeber's (1919) reconstruction of the "ancient Philippine" kinship system probably contains some critical lacunae, including "terms for male and female in Ego's generation". Fox could have determined this for himself by checking the relevant dictionaries. The task is now made easier by the publication of Elkins and Hendrickson (EH) (1984), although this publication does not include data on Bontok or Ilongot.

BONTOK (Reid 1976)	
etad	Sb
iyon?a	eB
naodi	yB
ka-lalaki-an	xm
ka-babai-an	xf

MANOBO, W. BUKIDNON (EH 1984)	
suled	//
me?emahan	xm
etevey	xf
(variants: system changing)	

BINUKID (EH 1984)	
suled	//
ma?ama	xm
atebay	xf

MANOBO, COTABATO (EH 1984)	
kaka-y	e//
hadi	y//
ma?ama	xm
tebay	xf

TBOLI (EH 1984)	
twogu	e//
twoli	y//
logi	xm
libun	xf

ILONGOT (Rosaldo & Rosaldo 1975)	
katan?agi	Sb
eka	eSb (=e//?)
agi	ySb (=y//?)
raki	xm
be:kur	xf

MANOBO, ATA (EH 1984)	
kako-y	e//
hari	y//
ma?ama	xm
ataboy	xf

KALAGAN, TAGAKAULU (EH 1984)	
magulaŋ	e//
maŋud	y//
inulug	xm
bubay	xf

MANOBO, DIBABAWON (EH 1984)	
su?un	//
ma?ama	xm
atoboy	xf

TIRURAY (Schlegel 1971)	
ofo?	eSb
tuwarey	ySb
lagey	xm
libun	xf

MARANAO
(McKaughan & Macaraya 1967)

pagari/panaman	Sb
kaka	e(=e//?)
ari	y(=y//?)
laki	xm
babai	Z (=xf)

NGAJU DAYAK
(Hardeland 1859)

aka/kaka	eSb
andi	ySb
pahari	//
ñahE	xm
betaw	xf

KARO BATAK
(Singarimbun 1975)

kaka	eSb
agi	ySb
senina	//
turaŋ	x

WG: *kalimbubu*[26]
WT: *anak beru*

TOBA BATAK
(Vergouwen 1964, Warneck 1977)

haha	e//
aŋgi	y//
i-boto	x

WG: *hula-hula*
WT: *boru*

REJANG
(Lebar 1972a)

kako-ʔ	eSb (=e//?)
asuaʔ	ySb (=y//?)
ŋuaneui	xm
klaweui	xf

BOLAANG MONGONDOW
(Dunnebier 1951)

utat	Sb
guyaŋ guyaŋ	eSb (=e//?)
ai ai y	Sb (=y//?)
lolaki	xm
bobai	Z (=xf)

BERAWAN, LONG TERAWAN
(Proctor 1979, Blust n.d.b)

padiʔ	Sb
tukeh	eSb (=e//?)
taréh	ySb (=y//?)
betaw	Z (=xf?)

MALAGASY
(Richardson 1885)

rahalahy	//m
rahavavy	//f
anadahy	xm
anabavy	xf

DAIRI-PAKPAK BATAK
(Manik 1977)

kaka	e//
aŋgi	y//
turaŋ	x

WG: *kula kula*
WT: *anak hamberu*

MIDDLE MALAY
(Helfrich 1904)

kaka-ʔ	eSb (=e//?)
adi-ŋ	ySb (=y//)
moanay	xm
kelaway	xf

SANGIR
(Steller & Aebersold 1959)

turaŋ	eSb (ref.)
aka-ŋ/kaka-ʔ	e// (addr.)
tuari	ySb (=y//)
mahuane	B (=xm)
bawine	xf

TAE'
(van der Veen 1940)

kaka-(ʔ)	eSb (=e//?)
adi	ySb (=y//?)
anak muane	xm
anak dara	xf

26 WG = 'male group', WT = 'female group'.

KOMODO
(Verheijen 1982)

(ha)ha	e
ari	y
na	xm
ncawa	xf

WG: (?)
WT: (?)

NGADHA
(Arndt 1961)

kae	e
azi	y
nara	xm
veta	xf

WG: (?)
WT: (?)

SIKA
(Meyer 1937)

nara	xm
wine	Z (=xf)

WG: (?)
WT: (?)

WALIJEWA
(Fischer 1957)

aŋu wua	//m
aŋu mawine	//f
na?a	xm
woto	xf

WG: (?)
WT: (?)

MEMBORO
(Fischer 1957)

aŋu wua	//m
aŋu kawini	//f
ana moni	xm
ana wini	xf

WG: *yera*
WT: *layia*

MANGGARAI
(Verheijen 1970)

ka?e	e//
ase	y//
nara	xm
weta	xf

WG: *anak rona*
WT: *anak wina*

ENDEH
(Needham 1968, 1970)

ka?	e//
ari	y//
nara	xm
veta	xf

WG: *éja*
WT: *éja*

SOLORESE
(Barnes 1972)

kaka	eSb (=e//?)
ari-n	ySb (=y//?)
naa	xm
bine	xf

WG: (?)
WT: (?)

KAMBERA
(Forth 1981, Onvlee 1984)

aŋu paluhu	//m
aŋu kawini	//f
eri	ySb (=y//?)
ana mini	xm
ana wini	xf

WG: *yera*
WT: *layia/anakawini*

ROTI
(Fox, pers.comm.)

ka?a	e//
fadi	y//
na	xm
feto	xf

WG: (?)
WT: (?)

SAVU
(Wijngaarden 1896)

a?a	eSb (=e//)
ari	ySb (=y//)
na mone	B (=xm)
na weni	Z (=xf)

WG: (?)
WT: (?)

TETUN
(Morris 1984)

mau-n	em
bii-n	ef
ali-n	ySb (=y//)
naa-n	xm
feto-n	Z (=xf)

WG: (?)
WT: (?)

WETAN
(de Josselin de Jong 1987)

jali	//m
riwa	ySb (=y//?)
kaka	eSb (=e//?)
nara	x

WG: (?)
WT: (?)

ALUNE
(Sierevelt 1920)

béta	x
kwali	//

WG: (?)
WT: (?)

SOBOYO
(Fortgens 1921)

kaka	eSb (=e//?)
uli?	ySb (=y//?)
naha	xm
foto	xf

ATONI
(Schulte-Nordholt 1971)

tata-f	e//
oli-f	y//
nau-f	xm
fefo-f	xf

WG: *an mone*
WT: *an feto*

LETI
(Jonker 1932)

ali	m//
ela	f//
nara	x

WG: (?)
WT: (?)

FORDAT
(Drabbe 1932a)

a?a	e//
wari	y //

WG: (?)
WT: (?)

PAULOHI
(Stresemann 1918)

wa?a	eB
wari	yB
leu manawa	B
leu pipina	Z

WG: (?)
WT: (?)

Blust, R. "Austronesian sibling terms and culture history". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*. **C-127:31-72**. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.31*

EVOLUTION, MIGRATION AND EXTINCTION OF OCEANIC BIRD NAMES

ROSS CLARK

1. INTRODUCTION

In this paper I present a small beginning towards the reconstruction of the Proto Oceanic terminology for bird species.[1] In an earlier study (Clark 1982) I had little difficulty establishing 40 or so reconstructions for Proto Polynesian and its major subgroups, mostly with fairly precise identification, which represents a substantial proportion of the bird species probably known to the Proto Polynesians. The situation for Proto Oceanic is much less satisfactory, for a number of reasons. The number of bird species in the Proto Oceanic homeland was very likely much larger than for Proto Polynesian. Naturally the difficulties of reconstruction are greater for Oceanic than for its relatively small and homogeneous Polynesian subgroup. And the available data on which reconstructions can be based leaves much to be desired. As a result there are fewer reconstructions, with less clear identifications, accounting for a smaller fraction of the Proto Oceanic avifauna.

The search for cognates further afield also proved discouraging. I checked more than 30 bird names reconstructed by various authorities for Proto Austronesian (PAN) and other protolanguages beyond Oceanic, as well as comprehensive sources of Malay bird names (Holmes 1989; MacKinnon 1990) and found only half a dozen with clear cognates in Oceanic.

It is important to bear in mind that the inventory of bird species present in the Proto Oceanic homeland in Proto Oceanic times was not necessarily the same as that found in any particular place today. The geographical range of bird populations is no more immutable than that of human populations. Certain bird species may be transported by humans to new homes. In the remoter islands of Oceania, as recent research has shown (Steadman 1989), human predation has brought about the local extinction of numerous species. In some cases linguistic evidence points to the earlier presence of birds now vanished, such as the megapode in Fiji and the swamphen in Eastern Polynesia (Clark 1982).

For the material on which this study is based, we have to thank on the one hand ornithologists who took the trouble to note vernacular names for the birds they were studying, and on the other lexicographers who were able to give either scientific identifications or at least reasonably full descriptions of the birds whose names they were recording. There is as yet no really comprehensive account of the bird terminology of any Oceanic-speaking community, based on extended fieldwork by a researcher with the competence both to identify the birds, to elicit their names, and to place them in the larger

1 I am grateful to Bob Blust, Paul Geraghty, Debbie Hill, Andrew Pawley and Malcolm Ross for comments and additional data.

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 73-86.
Pacific Linguistics, C-127, 1994.

cultural context. We may get some idea of what a full terminology would be like, however, by briefly considering two such studies of non-Austronesian-speaking communities in this region: Ralph Bulmer's work among the Kalam of the Kaironk Valley in Papua New Guinea (see especially Majnep and Bulmer 1977), and the more recent general ethno-biology of the Tobelo speakers of northern Halmahera by Taylor (1990).

Bulmer and Taylor both record something in the neighbourhood of 100 scientific genera of birds represented in their area of study (see Table). The number of basic terms in the local language is of the same order of magnitude: 159 'uninomial' terms in Kalam (Majnep and Bulmer (1977:203-207) – this figure excludes synonymous variants, but includes a few terms for bats); and 123 'basic (B°) terms' in Tobelo (Taylor 1990:119, not including bats).

TABLE: COMPARISON OF KALAM AND TOBELO BIRD TERMINOLOGIES

	Kalam (Bulmer)		Tobelo (Taylor)	
Total genera	137		91	
Basic terms	159		123	
Monotypic genera	102	(74%)	68	(75%)
Polytypic genera	35		23	
Subgeneric lexical distinctions	19		8	
Suprageneric terms	16		20	

As these writers and others have noted, there is a fairly high degree of agreement at the lower levels of classification between the folk taxonomies of people like the Kalam and Tobelo and the Linnaean classification of Western science. Nothing like Borges's Chinese encyclopaedia appears in the categories expressed in these languages. Indeed, to the extent that the Linnaean system is, in its origins, simply a formalisation of European folk classification, this amounts to a statement about universal tendencies in human classification of the natural world based on directly observable characteristics and discontinuities. (See Berlin (1992, Chapter 2) for a full discussion of this question.)

In the present study, as we are likely to be reconstructing single lexemes, the question might be raised as to whether, at the lowest level, these typically correlate with the genus or species level of the Linnaean system. This question turns out to be more difficult to answer than one might expect. A surprising three-quarters of all the bird genera in both the Bulmer and Taylor studies are (locally) monotypic, that is, represented in the area by a single species (see Table 1). For such cases the genus-species question clearly has no answer. If we look at the remaining (polytypic) genera, however, we find that by no means all have basic terms distinguishing species (or smaller categories) within them. Nearly half the polytypic genera in Bulmer's study, and more than half in Taylor's, are covered by a single basic term. Balancing the subgeneric terms are a number which include more than one genus (in some cases more than one family) under a single basic term.

For present purposes, then, the genus seems like a useful level of reference for discussing Oceanic bird names, though we will encounter cases where basic terms are both more inclusive and less inclusive than this. Popular notions about science seem to include the idea that 'species' is the most natural unit of classification, but it should be remembered that the genus names of the Linnaean system are nouns – in many cases the ordinary Latin names for 'kinds' of animals or plants – whereas the species names are adjectives – supplementary information that would not be required on every occasion. (Linnaeus himself apparently at first held that monotypic genera did not need a species term.)

Proto Oceanic **manuk*, judging from its various reflexes, may potentially have included all non-aquatic animals, but here I will be dealing with its more restricted sense of 'bird'. Even in this narrower sense, however, it is frequently noted that reflexes of **manuk* include bats, so names for these flying mammals are dealt with at the end of the present paper.

In the Linnaean system, between birds (Class Aves) and the various genera there are intermediate levels of 'Order' and 'Family'. Taxa of this rank are generally less common in folk taxonomies, and there are only one or two hints here of terms which may have had such a role in Proto Oceanic. The Linnaean families, however, provide a useful way of arranging the discussion in this paper.

Of about 150 families of birds distinguished by ornithologists, only about half occur in the Oceanic-speaking area. Half of these are restricted either to New Zealand (ruling them out as Proto Oceanic birds) or to the New Guinea area, for which my data is too limited to venture reconstructions here. Several more families are eliminated because terms for them simply do not turn up often enough in the sources. This leaves about 25 families for which one or more regional or Proto Oceanic terms may be reconstructed. I have further divided these into three large groups: sea birds, passerines and the rest. The first two are, for different reasons, more difficult to reconstruct than the third.

Sea birds are a relatively constant presence, with many cosmopolitan species present throughout the Oceanic region. By contrast, land bird species numbers decline steadily as one moves away from Asia and into the remote Pacific; thus sea birds correspondingly make up an increasingly significant proportion of the total species known in Micronesia and Polynesia than they do in, say, New Guinea. Moreover, in the former regions no-one lives far from the sea; sea birds are regularly observed, and even scrutinised, in the course of fishing and inter-island navigation. As a result, a typical Micronesian or Polynesian dictionary may have several different words for species of terns, while a comparable dictionary of a New Guinea Oceanic language may have none, or perhaps an entry with a gloss like 'bird sp. similar to a seagull'.

The passerines, 'sparrow-like' or perching birds, while they commonly account for around half the species of land birds in a given area, are by and large smaller than the non-passerines, and of little or no economic or other practical importance. Judging from the Kalam and Tobelo cases, they were probably known and named as fully in Proto Oceanic as other types of birds, but in the context of modern linguistic fieldwork they are more likely to be overlooked or poorly identified. Geographical distribution of species also tends to be more fragmentary, adding to the difficulties of comparison.

Thus it is among the non-passerine land birds, where a combination of size, accessibility and clear morphological distinctiveness makes it hard to confuse 'kinds', that the history of Oceanic bird terminology can most readily be reconstructed.

2. RECONSTRUCTIONS

Putative cognates are arranged by regions, in the following order: Central Pacific (CP); Micronesia (MC); New Caledonia (NC); South Vanuatu (SV); North Vanuatu (NV); South-East Solomons (SS); North-West Solomons (NS); Papuan Tip (PT); Western Melanesia (WM). Reconstructed protolanguages for the CP, NV, SS and PT groups are designated by prefixing 'P'. (I also cite a few reconstructions for Proto Polynesian (PPN), Proto Nuclear Polynesian (PNP) and Proto Malaitan (PML).) Where apparent cognates appear in two or

more regions, I have proposed a Proto Oceanic (POC) reconstruction, though in some cases only a sub-POC level may be justified. I have included some established reconstructions from other writers; these are identified by name, and only representative evidence is cited.

My main sources of information on Oceanic birds themselves have been Pratt et al. (1987) for Polynesia and Micronesia, Rand and Gilliard (1967) for New Guinea, Mayr (1945) for the rest of Melanesia, and Falla et al. (1978) for New Zealand. Since there is no single handbook covering the entire region, to maintain a consistent and reasonably up-to-date scientific taxonomy, I have used the terminology of Howard and Moore's (1980) world checklist throughout. A great deal of correcting and normalising of nomenclature has been required, so that scientific names given as glosses are not necessarily to be found in the original sources. Forms without glosses can be taken either as applying to the entire family in question, or as not clearly assignable, on the evidence available, to any particular genus or species within the family.

2.1 SEA BIRDS

2.1.1 PETRELS AND SHEARWATERS (Procellariidae)

These birds spend all the daylight hours far out at sea. Even at close quarters, the various species are hard to distinguish. They nest in burrows, and may be known only as 'birds that are heard at night'. Only in areas where some species ('mutton birds') are eaten would one expect people to have a close-up familiarity with them. Only regional forms have been found, none with any certainty of species or even genus identification:

NC: Kumak *ileep*, Hienghene *ninep*, etc. (cf. Gilbertese *tinebu* '*Puffinus nativitatis* (Christmas Island Shearwater)')
CP: PCP **liko* (Geraghty 1984), PPN **taiko*, **lofa*

2.1.2 TROPIC BIRDS (Phaethontidae)

The two extremely long tail feathers make these birds impossible to confuse with any other kind, but they appear to be little known in western Oceania. There are two species of the genus *Phaethon*, which differ principally in that one (*rubricauda*) has red tail feathers and the other (*lepturus*) white; they are not normally lexically distinguished. Only one regional reconstruction is established:

PPN **tawake* (cf. Fijian *tawake* 'banner')
MC: Trukese *wuuk* and Woleaian *siug* may possibly be cognate.

2.1.3 GANNETS AND BOOBIES (Sulidae)

Three species of boobies (genus *Sula*), although quite similar in appearance, appear to be distinguished at the species level by many Polynesian and Micronesian languages. For comparative purposes, however, it is difficult to correlate the different cognate sets with particular species.

PNP **takupu*, **(maua)kena*

A reconstructed Proto Eastern Oceanic **kanapu* 'gannet' is proposed by Biggs (1965:401) on the basis of cognates in Maori and Rotuman. (Gannets are members of the same family

found in temperate latitudes.) In fact the Maori form is an error; the word is reflected only in Samoic-Outlier languages and in Rotuman. This would warrant reconstruction to the PCP level, though the form of the Rotuman cognate is consistent with it being a Polynesian borrowing.

2.1.4 FRIGATE BIRDS (Fregatidae)

These birds are always noticed, whether from their high flight, their distinctive shape, the inflatable red gular pouch of breeding males, or their habit of attacking other sea birds and stealing their food. The two species (*Fregata ariel* and *Fregata minor*) do not seem to be lexically distinguished. There are two widespread cognate sets which appear to be geographically complementary:

(1) POC **ndaula* 'frigate bird (*Fregata*)' (Milke 1968)
SS: Nggela *daula*, Kwaio *gaula*
PT: Nada *dauka*
WM: Tolai *daula*, Bariai *raila*, Mussau *raura*

(2) POC **katapa* 'frigate bird (*Fregata*)'
CP: PPN **katafa*, Rotuman *'afaha* (cf. Fijian *kasaqa*)
MC: Trukese *asaf*, Ponapean *kasap*
NC: Iaai *ataû*, Nengone *wa-xej*, Dehu *wete*, Kumak *caave*
WM: Loniu *katah* and other Admiralty forms reflecting **katapV* (R. Blust, pers.comm.)

Set (2) shows an interesting connection to the word for the Bird's-nest Fern (*Asplenium*), reconstructable as PMP **katapaŋ* (Tryon, this volume). Compare Proto Central Eastern Polynesian **kiwa*, a different form covering the same two meanings.

2.1.5 PLOVERS AND SANDPIPERS (Charadriidae, Scolopacidae)

More than 50 species of these wading birds are recorded as visiting the shores of the Oceanic region. They are famous for their long-distance migrations, and are mainly seasonal visitors rather than permanent residents. Identification can be difficult even for experts (Mayr 1945:28). Nevertheless, a number of the most common species can be distinguished fairly readily by differences in size, bill shape and voice, and terms for them are fairly consistent, at least within Polynesia. These include the Golden Plover (*Pluvialis dominica*), the Bristle-thighed Curlew (*Numenius tahitiensis*) and the Wandering Tattler (*Heteroscelus incanus*). The most widely distributed term, however, is not identified with any precision:

(3) POC **nsipiu* 'shore bird'
NC: Paici *dipiu*, Pije *difiin*
PNV **siviu*
PSS **siviu*

There are a few other suggestive inter-regional agreements:

CP: PPN **kolili* '*Heteroscelus*'
MC: Namoluk *ilil* '*Heteroscelus*', Kusaiean *kulul*

CP: PPN **kiu* (or **kui*), PNP **kiwi* '*Numenius*' (cf. MC: Marshallese *kewak* '*Numenius*')

PPT **kiwiwi* 'sandpiper' (cf. also Tabar (New Ireland) *kuvivi*)
CP: PPN **tuli(i)*, Standard Fijian *dilio*, Wayan *dolii*, Rotuman *juli* '*Pluvialis*'

All of these terms, with their preponderance of high vowels, glides and liquids, are suggestive of onomatopoeic naming. While this raises the possibility of spurious cognates through convergent development, it may have the compensating advantage of providing an additional clue to the identification of the bird named (Clark 1991b).

2.1.6 GULLS AND TERNS (Laridae)

Many Oceanic dictionaries and vocabularies list terms for 'seagull', but gulls are not common in tropical Oceania, and most of these words probably refer to terns. A number of rather similar species in the genus *Sterna* are commonly labelled by a single lexeme; this seems the most likely identification for POC **kanawe*:

(4) POC **kanawe* 'tern (*Sterna*)' (Milke 1968)
SS: Nggela *ganae*, Kwaio *'anakwe*
NS: Taiof *kanai*
PT: Tawala *kanawe*, Motu *kanage*
WM: Yabem *kanô*, Gedaged *kanai*, Tolai *kanai*

Other regional forms are: PPN **tala* '*Sterna*'; PPT **ker(eC)a* 'seagull' (cf. MC: Trukese *araar*, Marshallese *kear*, NS: Halia *kira*, Roviana *dekere*).

Two related genera are generally noticed only in the remote regions: the smaller and darker noddies (genus *Anous*) and the beautiful White Tern (*Gygis alba*):

PCP **ŋoŋo* '*Anous*'
PPN **akiaki* '*Gygis*' (cf. Trukese *ekiyek* '*Gygis*')

2.2 PERCHING BIRDS (Order Passeriformes)

2.2.1 FLYCATCHERS (Muscicapidae)

The only trans-regional cognate set appears to centre around the most conspicuous and distinctive of these birds, the fantails (genus *Rhipidura*):

(5) POC **takere* 'fantail (*Rhipidura*)'
CP: Rotuman *fä'ere* '*Clytorhynchus* (Fiji shrikebill)'
NC: Kumak *daginy* '*Rhipidura*', Grand Couli *dari*
PNV **takere(kere)* '*Rhipidura*'
PT: Hula *tikere* '*Rhipidura*', Balawaia *sikerekoio* 'a small grass bird with a long tail'
WM: Tolai *tagene* '*Nectarinia* (sunbird)'

2.2.2 HONEYEATERS (Meliphagidae)

These are fairly common birds, distinguished by their habit of feeding on nectar with their brush-tipped tongues. Those of the genus *Myzomela* are widespread as far as Western Polynesia. Neither cognate set below is particularly satisfactory.

(6) POC **m(iu)nti* 'honeyeater'
CP: Fijian (Lau dialects) *miti kula, mitimiti* '*Myzomela*'
PSS **mudi(mudi)* '*Myzomela*'

That a honeyeater was the original referent of this form is suggested by the comparison with Proto Eastern Oceanic **miji* 'suck, lick' (Geraghty 1984). However, both the Polynesian reflexes (PPN **miti*) and the basic form (*miti*) in Eastern Fiji refer to the starling *Aplonis*. The reason for this shift of meaning is not clear.

Tongan and Fijian names for the Wattled Honeyeater (*Fulehaio*) are clearly cognate, and although this genus is not found west of Fiji, there are some possible cognate names for other birds of the same family:

PCP **vusil(eo)u* (Geraghty 1984) '*Foulehaio*' (Tongan *fuleheu*, Fijian *visilou*)
NC: Iaai *bahelo* '*Philemon* (friarbird)'
NV: Raga *busubihil* '*Myzomela*', South-East Ambrym *vasil* '*Myzomela*'

2.2.3 STARLINGS (Sturnidae)

The starlings of genus *Aplonis* are the only members of this family which reached Oceania in pre-European times. In the following set, though the meaning is quite well defined, formal correspondences are problematic:

(7) POC **pusi(Ca)* 'starling (*Aplonis*)'
CP: PPN **fui(w)a*, Fijian *vocea*, Rotuman *husila* '*Aplonis*'
MC: Ponape *sie* '*Aplonis*'
NV: Mota *wotepispis* 'merula [blackbird]'
PSS **bisu* '*Aplonis*' (cf. Rennellese *ghaapilu* '*Aplonis*')
WM: Tolai *vuira* '*Aplonis*'

The only other regional reconstruction worth noting in the passerine group is PCP **jea(jea)* 'triller (*Lalage*)', based on Standard Fijian *sea(sea)*, Wayan *seesee*, Rotuman *jea*, and Niuean *heahea*.

2.3 NON-PASSERINE LAND BIRDS

2.3.1 CASSOWARIES (Casuariidae)

One or more species of *Casuarius* was almost certainly known to the POC speakers. Though restricted to the New Guinea area, there is a well-established POC reconstruction for this bird:

(8) POC **kasuari* 'cassowary (*Casuarius*)' (Milke 1968)
PT: Doga *kouari*, Suau *ngasuali*
WM: Lihir *kosol*, Tami *kisua*, Kela *kusua*

2.3.2 HERONS AND BITTERNS (Ardeidae)

The most widespread and common species is the Eastern Reef Heron (*Egretta sacra*). Some complications arise from the fact that the bird has two colour phases, which may be lexicaly distinguished (e.g. Mele-Fila *oova* 'blue-grey heron', *matukutea* 'white heron').

There are also various smaller and less conspicuous members of the family such as the bitterns (*Ixobrychus*) and the Green Heron (*Butorides*).

(9) POC **kaowa* 'heron'
CP: PNP **kao* '*Butorides*', Fijian *visakoo, vusukewa* '*Butorides*'
MC: Trukese *kawakaw* 'heron', Ponapean *kowelik* 'heron-like bird' (cf. Nukuoro *gava* '*Egretta*')
NC: Kumak *kôva* 'black heron', Paicî *köö* '*Egretta*', Houailou *gōxō* 'common heron (long-cou)', Canala *kaaukwa* 'white heron'
PNV **ʔova* '*Egretta*'
PSS **kaova* (cf. Rennellese *ghou* '*Ixobrychus*')
NS: Halia *koei* 'crane'

This term seems to apply most often to *Egretta*. In CP, however, *Egretta* is Fijian *beloo*, PPN **matuku*, which do not appear to have cognates elsewhere; and reflexes of **kaowa* apply to *Butorides*. Perhaps **kaowa* was originally a generic term, displaced by innovative CP forms for *Egretta*, but surviving as the name for the less common species.

Other regional forms are: PSS **sou*, PPT **boqe*.

2.3.3 DUCKS (Anatidae)

Although many Northern Hemisphere ducks are seen sporadically in Hawaii and Micronesia, the only truly widespread and common member of this family in Oceania is the Spotbill Duck (*Anas poecilorhyncha*):

(10) POC **ŋaRa* 'duck'
CP: Fijian *gaa*
SS: Arosi *ngara i suʔu*
NS: Roviana *ŋara*

Blust (pers.comm.) notes Manggarai (Central Malayo-Polynesian) *ngara* 'wild duck' as external support for this reconstruction. The following forms suggest the existence of a metathetic doublet **raŋa*:

MC: Namoluk *rang*, Marshallese *rongbet*
NC: Iaai *eng*, Hienghene *niang*
SV: Kwamera *iareng*
PSS **karaŋa*

2.3.4 BIRDS OF PREY (Accipitridae, Pandionidae, Falconidae)

Up to half-a-dozen species of hawks, eagles, ospreys and falcons are commonly found in western Melanesia, but they thin down to a single species further out and disappear altogether in remoter Micronesia and Polynesia. Where more than one species exists they are separately lexicalised. Two terms seem reconstructable at POC level, one for the Crested Baza (*Aviceda subcristata*) and another for the osprey (*Pandion*) or one of the fish-eating eagles:

(11) POC **kito* 'baza (*Aviceda*)'
PSS **ki(ts)o* '*Aviceda*'

NS: Roviana *pito* '*Aviceda*', Halia *kitou* 'large bird'
PT: Iduna *kito* '*Aviceda*'

(12) POC **taraŋkau* 'fish-eating eagle or osprey'
PSS **taraqau*
WM: Tolai *taraqau* '*Pandion*', Manam *taragau* 'fish-eagle'

Other regional forms are: PNV **mala* (cf. NC: Houailou *boamara*, etc.); PSS **tava*.

2.3.5 MEGAPODES (Megapodiidae)

These birds, known also as incubator birds, or less helpfully as 'scrub-fowl', 'bush-hen', etc., have the unique habit of hatching their eggs by burying them in naturally warm material rather than sitting on them. These large eggs are an appreciated food in many Oceanic communities, and it is possible that human beings were responsible for transporting them to some of the remoter islands. F.W. Christian (1926) first called attention to the first set of cognate names for this bird. This almost certainly refers to the genus *Megapodius*, which is common as far east as Tonga. A larger type of megapode, the 'brush turkey' of genus *Talegalla*, was probably present in the Oceanic homeland, and might speculatively be associated with the second cognate set.

(13) POC **malau* 'megapode'
CP: PPN **malau* '*Megapodius*'
PNV **malau* '*Megapodius*'
WM: Gedaged *malau*

Christian (1926) cites cognates from Micronesia and New Britain which I have been unable to confirm. There are also a number of undoubtedly related forms from eastern Indonesia such as Sangirese *maleo* '*Megapodius*' (R. Blust, pers.comm.).

(14) POC **ki(C)au*
SS: Malango *kihau* '*Megapodius*', Lau *geo*, Longgu *geu*
NS: Halia *kihau* 'ground bushfowl', Roviana *eo* 'brush hen', Maringe *kho'io* '*Megapodius*'
WM: Tolai *kiau*, Amara *okoiou*, Mussau *kikiau*

2.3.6 FOWLS (Phasianidae)

The red jungle fowl (*Gallus gallus*) has reached almost every part of Oceania as a result of human settlement. Domestic and feral fowls are not in general lexically distinguished. There is no clearly established POC term. One set of cognates is represented by PNV **toqa*, Fijian *toa* (cf. PPN **toqa* 'courageous, warrior'); another by NS, PT and WM forms such as Roviana *kokorako*, Bwaidoga *kakaleko*, Tolai *kakaruk*.

2.3.7 RAILS (Rallidae)

The largest and most conspicuous species of rail in Oceania is the Purple Swamphen (*Porphyrio porphyrio*), notable as a garden pest. It is curious that in the only trans-regional cognate set there seems to be a connection with the Banded Rail (*Rallus philippensis*), a

much smaller and shyer bird with which the swamphen could not possibly be confused. The only other rail with a widespread name is the Sooty Crake (*Porzana tabuensis*).

(15) POC **ŋpilake* 'rail'
PNV **bwilake* '*Rallus*'
PSS **bwila(kr)e* '*Porphyrio*'

Other regional forms are: PCP **qalae* '*Porphyrio*'; PCP **weka* '*Rallus*'; Fijian *moo*, PPN **moso* '*Porzana*'.

2.3.8 PIGEONS AND DOVES (Columbidae)

Even the remoter island groups commonly have several lexically distinguished species in this family. The most widespread types are the large pigeons of genus *Ducula*; fruit doves (*Ptilinopus*); and various ground doves.

(16) POC **baluc* 'pigeon (*Ducula*)' (Ross 1988) (PAN **baluj*)
NS: Nehan *baluh*, Roviana *baruku* 'fruit pigeon'
WM: Tami *mbalut*, Tigak *valus*, Mussau *balus(u)*

In other regions there are also terms reminiscent of the above, though not regular reflexes: PCP **ru(bv)e* (PPN **lupe*, Fijian *ruve*) '*Ducula*'; PSS **bola* '*Ducula* (or generic)'; NS: Zabana, Maringe *bora* '*Ptilinopus*'.

(17) POC **bune* 'fruit dove (*Ptilinopus*)' (Grace 1969) (PAN **punay*)
CP: Fijian *bune*
NC: Iaai *biny*
SV: Kwamera *pɨn-harov*, *pɨn-uas*
NV: Mota *qasa-pule*, Port Sandwich *na-vimbün*
PT: Tawala *bunebune*, Motu *pune*
WM: Tolai *buna*, Manam *bune*

(18) POC **(lV)muko* 'dove'
PSS **lumuko* 'ground dove (*Gallicolumba* or *Chalcophaps*)'

Although attested in only one region of Oceania, this reflects PMP **-muken* 'omen dove' (Blust 1983, 1987b), with the 'uncanny' prefix **qali-*, though Blust does not list any Oceanic reflexes.

Other regional forms are: CP: Fijian *soqe* '*Ducula, Columba*' (cf. NV: South Makekula *soŋg* '*Ducula*'); PNV **kuiba* '*Ducula*', **mwara*, **taroa*.

2.3.9 PARROTS (Psittacidae, Loriidae, Cacatuidae)

As with pigeons, there are commonly several lexically distinct species in any region. Diversity ranges from about 20 genera in the New Guinea area to only one or two in the remoter islands. The discussion here is roughly in descending order of size.

The Sulphur-crested Cockatoo (*Cacatua galerita*) is distinguished from all other members of this family by its size and colour. There are no clear trans-regional cognates, but note PPT **wakeke* 'white cockatoo (*Cacatua galerita*)'.

The Eclectus Parrot (*Eclectus roratus*) seems the most likely POC referent for the following cognate set. The sexes are strikingly different in colour, and the male (predominantly green) and female (predominantly red) are sometimes separately lexicalised, but no widespread agreement in such sex-distinguishing terms was noted.

(19) POC **kaRa* 'parrot (*Eclectus*)'
CP: Fijian *kakaa* '*Prosopoeia*', PPN **ka(a)kaa*
SS: Nggela *kalao* 'a green parrot', Kwaio *a'ala* 'Eclectus Parrot (male)', Bauro *ghara* 'Eclectus Parrot'
NS: Maringe, Simbo *makara* 'Eclectus Parrot', Roviana *kara* 'parrot (generic)', Halia *kalakala* 'green parrot'

The identification of this cognate set with *Eclectus* seems fairly clear in the Solomons, but as the species does not occur further out in the Pacific, the CP cognates are entered with some reservation. (It is at least possible that some are imitative of parrot screeches.) In Fiji, the name *kakaa* is applied to the largest local members of this family, the Shining Parrots (*Prosopeia*), a genus endemic to Fiji. Present populations of these birds in Tonga are believed to be of recent introduction, but Steadman (1989:193-195) reports possible fossil evidence of much earlier presence there. In Eastern Polynesia, at least two species of parakeet (*Cyanoramphus*) were present in the Society Islands in the late eighteenth century; though both are now extinct, names recorded in early vocabularies suggest *'a'a* as the Tahitian name for them. By the time the name reaches New Zealand, it has evidently assumed family-level generality, as it is applied to the very large *kaakaa* (*Nestor meridionalis*), the huge and flightless *kaakaa-poo* ('night parrot') (*Strigops*) and the much smaller *kaakaa-riki* ('little parrots') (*Cyanoramphus*).

A different set of cognates appears to be geographically complementary to the preceding, and probably refers to the same species:

PPT **kalagar* 'parrot' (Roro *ʔaea* and Mekeo *alaʔa* are specifically identified as the green (i.e. male) Eclectus Parrot)
WM: Tolai *kalagar* '(green) Eclectus Parrot', Bali-Vitu *ɣalaŋa* 'Eclectus Parrot', Tabar *garagar*, Amara *akalangar*

The following cognate set is most readily associated with the Rainbow Lory (*Trichoglossus haematodus*), widespread throughout Melanesia (a related species occurs on Ponape). However, a number of apparent cognates refer to other middle-size parrots (*Eos* and *Lorius*).

(20) POC **si(pw)iri* 'lory (*Trichoglossus*)'
CP: PNP **siwili*
MC: Ponapean *serehd* '*Trichoglossus*'
NC: Fwâi *diwali* '*Cyanoramphus*'
NV: Mota *sivure*, Raga *sivi*, South-West Bay *nesivir*, Efate *siviri* '*Trichoglossus*'
SS: Kwaio *suli* '*Trichoglossus*'; Malango *tsitsiri*, Ugi *siri* '*Eos*'; Bauro *sivi*, Arosi *(diwi)siri* '*Lorius*', Sa'a *siri* 'lory spp.', Nggela *siri* 'a small red parrot', Bughotu *siviri* 'red parrot'
NS: Roviana *siri* 'red parakeet' and *sivoro* 'a parrot like the Rosella', Simbo *siri* 'a red bird that eats coconut', Halia *li* 'small red parrot', Maringe *sivoro* 'green and red parrot', *sīgre* 'small colourful parrot'

PT: Balawaia *rivili* 'small green parrot', Lala *sivili* 'small parrot', Roro *timiri* 'small parrot', Mekeo *tsipili* 'noisy parrot'
WM: Loniu *cihi* and other Admiralty forms reflecting POC **nsipirV* (R. Blust, pers.comm.)

The PNP reconstruction must be considered very tentative, in view of the fact that none of these parrots is presently found in Polynesia. Aside from Samoan *vilu* 'a large parroquet' (Pratt et al. 1987), which may just possibly have referred to *Prosopeia*, it is based on Eastern Polynesian forms *vini* for the eponymous genus of small lories (*Vini*) and a number of Outlier forms which may possibly be borrowed from Melanesian languages.

The smallest parrots of widespread distribution in Oceania are the lorikeets of genus *Charmosyna* (and the closely related *Vini* in Polynesia and eastern Fiji):

(21) POC **Ceŋa* 'small parrot (*Charmosyna*)'
CP: PPN **seŋa*, Fijian *sega* '*Vini*'
NV: Mota *rengas*, South-East Ambrym *reng* '*Charmosyna*'
WM: Manam *seng* 'parrot'

A number of residual groups centring around the canonical form **ki(lr)V* show suggestive resemblances without permitting any clear reconstruction(s) at the POC level:

(a) SS: Sa'a *iloilo'a* 'female Eclectus Parrot', Malango *kira* 'Eclectus Parrot', Nggela *kilo* 'red parrot', Longgu *kiloi* 'red parrot (female)'
NS: Tinputz *(ki)kire* 'Eclectus Parrot', Banoni *kire* '(red) Eclectus Parrot', Babatana *kira* 'lorikeet'
(b) SS: Lau *kirori*, 'Are'are *kirori*, Sa'a *kirori* '*Eos*', Arosi *kirori* '*Eos*'
(c) SS: 'Are'are *riko(riko)*, Kwaio *liko(liko)* '*Eos*'
(d) SS: Lau *kila(kila)* 'green parrot', Sa'a *kile(kile)* 'small green parrot', Arosi *kira(kira)* 'small green parrot'
(e) NS: Zabana *kikila* '*Eos*', Maringe *naklio* 'red and green parrot, possibly female Eclectus', Simbo *kilo*
(f) PT: Hula *kiloki* 'lovebird', Balawaia *kiloki* 'dark green bird'
(g) PCP **kula* 'collared lory (*Phygis*)'

2.3.10 CUCKOOS (Cuculidae)

Only one migratory species has even a regionally reconstructable name, the Long-tailed Koel (*Urodynamis taitensis*):

PPN **kaalewa(lewa)* '*Urodynamis*'

2.3.11 OWLS (Tytonidae, Strigidae)

The only widespread species in Oceania is the Barn Owl (*Tyto alba*). The following set may suggest imitation of owl hoots; the voice of the Barn Owl, however, is not a hoot, but a screech. Thus it is possible that at the POC level this name (or names) referred to some other type of (hooting) owl of the New Guinea-Solomon Islands region. The available data does not allow even a guess at such an identification.

(22) POC **Cu(rl)u* 'owl'
PCP **lulu* '*Tyto*'
MC: Trukese *fukuro*
PNV **lulu* '*Tyto*'
SS: Nggela *nduru*, Tolo *kuru*, Longgu *kuru*
NS: Maringe *nakrudu*, Halia *kurou*, Halia *tutul*, Roviana *duduru*, Zabana *kikituru*
WM: Tolai *kurukur* 'small owl'

2.3.12 SWIFTLETS (Apodidae)

These are small birds which catch insects on the wing. Although Linnaean classification places swallows (Hirundidae) in a distinct family (in fact a different order) from swiftlets, folk taxonomies often use a single term for both, for example, Kalam *sskl* (Majnep & Bulmer 1977:109). The swiftlets (*Collocalia*) are most widely recorded, but the Pacific Swallow (*Hirundo tahitica*) is found in many parts of Oceania, and would probably have been covered by term (23):

(23) POC **kampakampal* 'swiftlet (*Collocalia*)'
CP: Standard Fijian *kaakaba* '*Collocalia*', Wayan *kalaba* '*Collocalia*'
PNV **kabakaba*
SS: Arosi *'apa'apa*
NS: Maringe *ḡagable* '*Collocalia*'
PT: Iduna *manu yayabama* '*Collocalia*'
WM: Tolai *kabakabal* '*Collocalia*', Mussau *kiriababa* 'insectivorous cave bat'

A connection with POC **kapa* 'flap wings, flutter' seems likely.

2.3.13 KINGFISHERS (Alcedinidae)

Although half a dozen genera were probably present in the homeland, only the collared kingfishers of genus *Halcyon* are found beyond New Guinea and the Solomon Islands. The following three cognate sets have a distinct family resemblance and suggest imitation:

(24) POC **(ts)iko* 'kingfisher'
CP: PPN **tikotara* (cf. Fijian *sikorere* 'wood swallow (*Artamus*)' and *seecala* '*Halcyon*')
MC: Sonsorol-Tobi *tagadik*
PNV **siko*
SS: Arosi *sigo*, Rennellese *ligho*
NS: Roviana *siqe*

(25) POC **kiokio* 'kingfisher'
SS: Longgu *kiokio*, Nggela *giogio*, PML **ki'o*, Arosi *kiokio*
NS: Roviana *kikio*, Zabana *kiokio*, Halia *kiukiu*
WM: Nauna *kikiw*, Seimat *kioki*, Wuvulu *ioio* (R. Blust, pers.comm.)

(26) POC **kiki* 'kingfisher'
NC: Iaai *wajiji*, Dehu *ciciat*, Nengone *wa-zeze*
SS: PML **i'i*
WM: Tolai *kiki*, Bali-Vitu *kiki*, Nakanai *kiki*, Mussau *sokiki*

2.3.14 HORNBILLS (Bucerotidae)

Blyth's Hornbill (*Aceros plicatus*) is the only member of this family found in Oceania (New Guinea and the Solomon Islands).

(27) POC **binam* 'hornbill (*Aceros*)'
PSS **bina*
PT: Dobu *binama*, Ubir *binam*, Motu *bina*, Iduna *binama*

2.3.15 BATS (Chiroptera)

Bats are mammals (Order Chiroptera), but as substantial flying creatures they are often grouped with birds. Perhaps 20 genera of bats would have been present in the POC homeland region (Ziegler 1972:13-16). The major division is between the fruit-eating bats (Family Pteropidae), the largest of which belong to the genus *Pteropus* and are commonly known as 'flying foxes'; and the various smaller insectivorous bats grouped into the Suborder Microchiroptera.

Two POC terms for 'flying fox' have been reconstructed:

(28) POC **mpeŋka* 'flying fox' (Milke 1968)
CP: Fijian *beka*, PPN **peka*
MC: Mokilese *pwehk*
NC: Nenema *bwak*
NV: Vowa *mbeke*
WM: Vitu *bega*, Siassi *mbiaŋ*, Pala *bëka*

(29) POC **maliboŋi* 'flying fox' (Ross 1988)
PT: Iduna *manubogi*
WM: Manam *malabong*

Other regional forms are: PNV **qarai* and **manukona* 'flying fox'. The latter can be analysed as 'taboo bird'; one might speculate that (28) also represents an original compound ***manu-boŋi* 'night bird'.

No POC reconstruction can be given for the Microchiroptera, but two widespread patterns of naming them exist. On the one hand they may be treated as 'small flying foxes' and accordingly named with a reduplicated form of the term for the larger bats, as PPN **peka* 'fruit bat', **pekapeka* 'small bat'; or Iaai *bû* 'flying fox', *obûûbû* 'small bat'. Alternatively, they may be grouped with the swallows and swifts (see item (23)), which they resemble in size, colour and above all in their restless hawking flight. Examples are South-East Ambrym *avæp* 'any small bat, swiftlet' and PPN **pekapeka* 'small bat', which also includes swallows and swiftlets.

Clark, R. "Evolution, migration and extinction of Oceanic bird names". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*.
C-127:73-86. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.73*

PROTO WHO DRANK KAVA?

TERRY CROWLEY

In attempting the reconstruction of the distant past, linguists, archaeologists, phsyical anthropologists, biologists and oral historians all have their parts to play. Although the papers presented at this symposium have all attempted to reconstruct the Austronesian past primarily through a consideration of the linguistic facts, the conclusions that we reach often have important implications for the other disciplines as well.[1]

One thing that becomes apparent from a number of the papers presented at the Austronesian Terminologies conference is that many archaeologists are sceptical of the contribution that linguists have made in the past in their reconstruction of Austronesian culture history. While conceding that linguists have developed a fairly reliable technique for reconstructing past *forms*, archaeologists tend to be much more sceptical of the reconstruction of the *meanings* of some of these forms.

Sometimes, there is good justification for this kind of scepticism. On the basis of the meanings of reflexes of Proto Polynesian **tusi*, it would be logically possible to reconstruct one of the meanings of the original form as 'book'. No linguist (as far as I know) has ever reached this conclusion, and Walsh and Biggs (1966:122) quite rightly accept that the meaning of 'book' for reflexes of **tusi* in modern Polynesian languages represents a late eighteenth and early nineteenth century parallel semantic shift from original 'point, indicate, delineate', via the introduced meaning of 'write'.

There are other instances, however, where linguists have, or may have, erred in their reconstructions. Walsh and Biggs (1966:40) also reconstruct **kumala* 'sweet potato' as a Proto Polynesian word, yet it has now been fairly well established on the basis of non-linguistic evidence that the sweet potato was a relatively late introduction into Polynesia from South America. Others have reconstructed Proto Austronesians as literate metallurgists, arousing the scepticism of archaeologists.

In this paper, I relate the linguistic and the non-linguistic reconstructions of history with regard to the consumption of kava, the mildly narcotic juice of the roots and stem of the plant known botanically as *Piper methysticum*. This juice is, or in some cases was until recently, widely drunk around the islands of Vanuatu, as well as in Fiji, Rotuma and much of Polynesia, the Micronesian islands of Ponape and Kosrae, and one or two isolated pockets in Papua New Guinea. Areas in Polynesia where kava was not drunk include the remote and climatically unsuitable islands of New Zealand and Easter Island, though in some areas, such

1 Thanks to Kirk Huffman, Paul Geraghty, Monty Lindstrom, John Lynch and Vincent Lebot for helpful comments on an earlier draft of this paper. Responsibility for final conclusions, of course, rests with myself.

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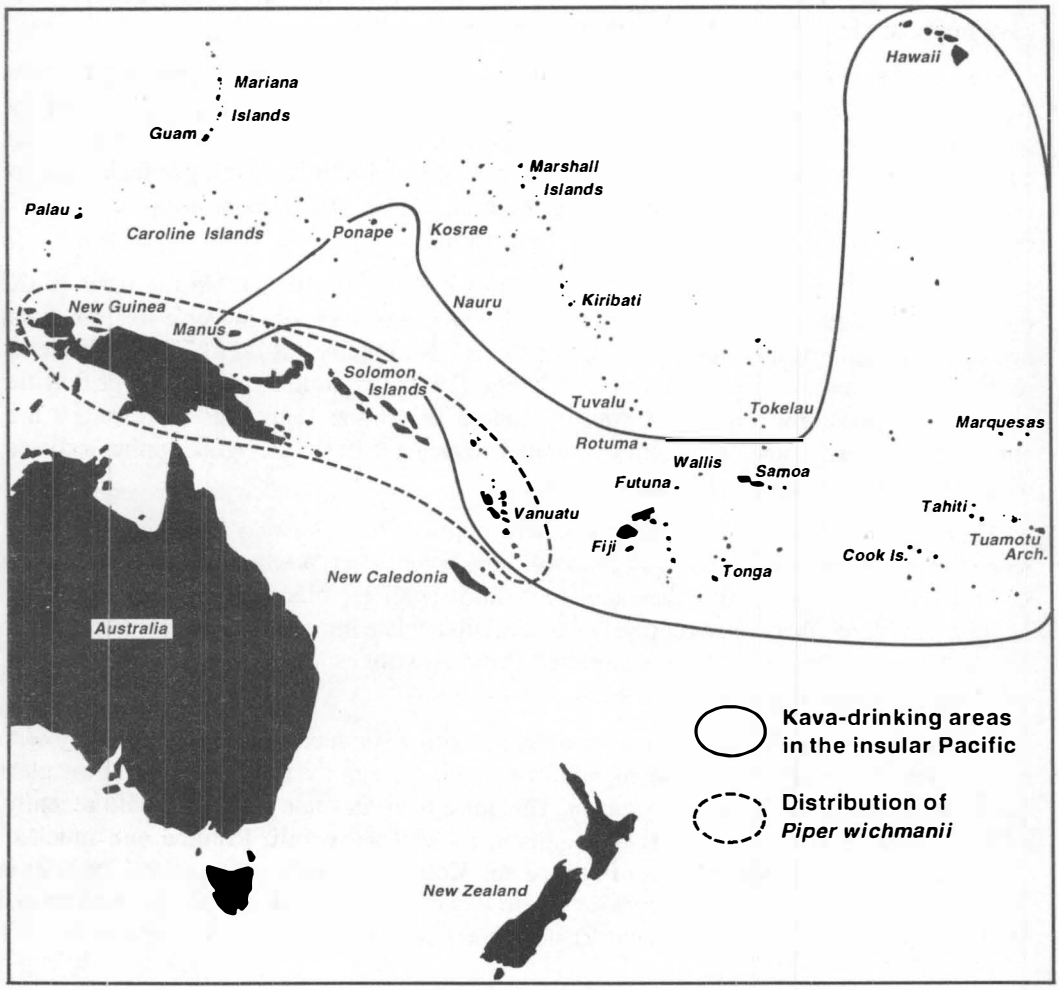
Pacific Linguistics, C-127, 1994.

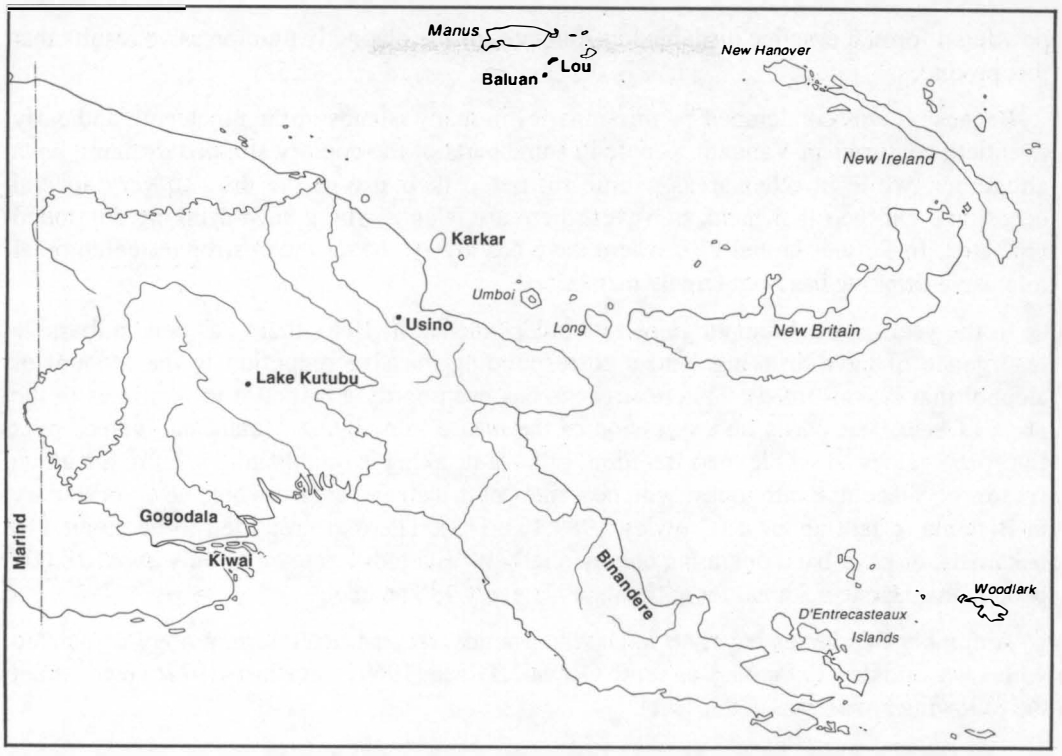
as Tahiti, kava was much less commonly found than in other parts of Polynesia. There are also some areas of Vanuatu where kava was traditionally not drunk at all, or was very restricted in terms of who could drink it or when, for example, Ambrym and southern Malakula (Huffman, pers.comm.). Kava-drinking is not reported from the Solomon Islands, except for the evidence of the entry *kukumanu* in Arosi, which Fox (1970:216) glossed as follows:

> *a coconut drinking cup, for solemn occasions; usually decorated with carvings of birds; formerly used at ceremonial kava drinking at death ceremonies.*

Maps 1 and 2 show the distribution of kava-drinking areas in the Pacific at the time of initial European contact.



MAP 1: DISTRIBUTION OF KAVA-DRINKING AREAS IN THE PACIFIC



MAP 2: KAVA-DRINKING AREAS AND LOCATIONS IN PAPUA NEW GUINEA

The customs surrounding the consumption of the drink in the Pacific vary from area to area. In Vanuatu, kava is by tradition a drink for men only, sometimes being drunk recreationally and sometimes ceremonially. When drunk recreationally, it is generally consumed in the late afternoon or early evening, with a minimum of ambient noise, so that the drinker can 'listen' to the effect of the kava.[2] The strength of traditional restrictions against women drinking kava in Vanuatu varied from island to island, and in some cases, women could be put to death for even catching sight of men drinking kava. In Polynesia, however, the drinking of kava is much more a matter of ritual, with important occasions being marked by kava ceremonies of extreme formality and elaboration, with rigid hierarchies determining who can drink kava, and when.

Kava can be prepared in a variety of different ways in different areas. In some places in Vanuatu, the fresh roots are ground on a wooden plate, in others in the hand with a piece of coral rock, and in others they are chewed and the liquid squeezed out. Today in Vanuatu, and in other parts of the Pacific, the roots are also commonly pounded in a metal pipe (or even ground in a meat grinder). In some parts of the Pacific, most notably Fiji, kava is sold in

2 Which, the reader is assured, can be positively delightful, despite the fairly appalling taste. Geraghty (pers.comm.) disagrees on the latter point, though I have to point out – *pace* Geraghty – that ni-Vanuatu generally regard anybody who actually *likes* the taste of kava as being somewhat odd.

powdered form, a practice disdained in Vanuatu for the distinctly unimpressive results that this produces.[3]

Because it was condemned by missionaries in many islands in the nineteenth and early twentieth centuries in Vanuatu, people in some parts of the country stopped drinking kava altogether, while in other areas people restricted their use of the drug to very special occasions. On the other hand, however, there are islands where kava-drinking continued unabated. In Polynesia and Fiji, where kava has always had a much stronger ceremonial role, kava-drinking has been largely maintained.

In the years since Vanuatu gained its independence in 1980, there has been a massive resurgence of kava-drinking (and a corresponding massive reduction in the amount of alcohol that is consumed). This resurgence has been partly a response to increases in the price of beer, and partly an expression of the desire to maintain Melanesian values over European values. A whole 'neo-tradition' of kava-drinking is establishing itself in the urban centres of Vila and Santo today, with new rules of usage, and even a whole new vocabulary in Bislama to talk about it (Crowley 1989:111-113). There are reported to be about 140 nakamals, or kava-bars, operating commercially in Vila today, a town of only about 18,000 people, that is, one nakamal for approximately every 130 people!

A number of sources have, on linguistic grounds, reconstructed terminology associated with kava-drinking as far back as Proto Oceanic. Grace (1969) and Blust (1972c) reconstruct the following kava terms at this level:

**kava*	kava
**ka(n)ta*	kava branch
**kosa*	kava remains
**tunas*	kava root shoot

The reconstruction of **kava* in Proto Oceanic was presumably based on the fact that **kawa* presents an uncontroversial reconstruction for Proto Polynesian (Walsh & Biggs 1966:30), and that apparently cognate forms occur in the Manus languages of Papua New Guinea, that is, *kau* in Baluan and *ka* in Lou, *keu* and *kau* in some of the coastal Madang languages, and that the forms *sakau* in Ponapean and *suhka* in Kosraean are possibly cognate as well.

We can be reasonably certain on non-linguistic grounds that kava has been around in Vanuatu for some considerable time, and that it long predates European contact. Garanger (1972) reports the oral tradition from the Efate and Shepherds area of Central Vanuatu which said that when the leader Roi Mata died, a number of couples were buried alive with him. Most versions of the story report that the men were stupified by strong doses of kava before they were killed, while other versions indicate that they were hit on the head to knock them unconscious. The wives of these men who were sacrificed beside them were said to have been buried fully conscious. Photographs of the grave site excavated on Eretoka, or Hat Island, movingly show the men to have died peacefully, while the women clearly suffered agonies (Garanger 1972, Figures 154-175). The men's skulls were intact, which is more

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3 The Vanuatu Commodities Marketing Board is currently experimenting with the manufacture of a new product by which the active ingredient is extracted in soluble form so that a teaspoonful in a glass of water is all that is needed. This *neskava* is not yet available commercially.

consistent with those versions of the story which reported that the men had been anaesthetised with kava. Radiocarbon dating places these burials at around AD 1265.[4]

The question that we should examine now is: To what extent is the non-linguistic evidence consistent with kava having had Proto Oceanic antiquity? And if kava-drinking should prove not to go back as far as Proto Oceanic, then how can we account for the linguistic facts which point to the reconstruction of **kava* as a Proto Oceanic term?

The geographical and biological origins of kava have yet to be definitively resolved, though it certainly goes back considerably further than the seven hundred years suggested (but by no means proven) by the archaeological evidence in Vanuatu. Some non-linguistic sources suggest that kava-drinking began in Polynesia. This is the easiest theory to argue against, however, as there is no biological evidence that the *Piper methysticum* plant from which the drink is taken is indigenous to any of these islands.

Other sources suggest that kava originated somewhere in the western Pacific rather than in the east. Some early twentieth century commentators suggested that kava-drinking began in Papua New Guinea, and that this custom was later supplanted in all except residual pockets by the chewing of betel nut. One problem with this interpretation is that there is good evidence that **buaq* can be reconstructed as a term for 'betel nut' as far back as Proto Austronesian, and there is also associated vocabulary going back a very long way which suggests that this was chewed. Thus, rather than representing a relatively recent introduction, the chewing of betel nut seems to be of much greater antiquity on linguistic grounds.

Despite this, some more recent studies have also supported a western origin for kava. Lebot and Cabalion (1986:19-21) presented an argument on botanical grounds that the plant may have originated in the cooler highland forests of Papua New Guinea. Their chemotypic and genetic work suggested that kava probably evolved from *Piper wichmanii*, a plant that is found in an arc from Papua New Guinea to Vanuatu (see Map 1). Although this plant is similar in appearance to *Piper methysticum*, it grows wild, and its roots cannot be used for drinking, a fact which is reflected in the Bislama name for this plant, that is, *waelkava*.

The kava plant can reproduce itself when a branch from an old plant bends back to the ground allowing a new plant to take root from it. However, for kava to spread from island to island human agency is essential. Thus, if kava did originate in the west, its occurrence further to the east could only be accounted for as being the result of human migration, as there is no biological evidence for the multiple domestication of *Piper wichmanii* (Lebot, pers.comm.).

Though there has been considerable variety of opinion in the past as to the biological source of domesticated kava, much of the discussion has been based on an incomplete knowledge of the botanical information. Lebot (pers.comm.) now indicates that his own and Cabalion's earlier conclusion appears to have been in error, and that the most recent scientific evidence points to Vanuatu as the most likely point of initial domestication of kava. It now appears that *Piper methysticum* may not be a separate species after all, but simply a

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4 Interestingly, despite the remarkable agreement between archaeology and the oral tradition associated with the Roi Mata stories, these have recently been declared by representatives of Ifira to be mere colonial fabrications (Kalsakau 1990:26). The same writer goes on to recommend that these fabrications which have been recorded for posterity and stored in the Vanuatu Cultural Centre should be removed and burned (Kalsakau 1990:27).

domesticated variety of *Piper wichmanii* (Lebot 1989:97-99), with the northern islands of Vanuatu representing the most likely point of domestication (Lebot 1989:112-113). Such a conclusion would also be consistent with widespread oral tradition in northern Vanuatu which points to central Maewo being the source of kava in the northern islands (Huffman pers.comm.), and Lebot (pers.comm.) even goes so far as to say in written comments on an earlier version of this paper that he would localise the domestication of kava on biological grounds specfically to Maewo.

Whatever the eventual conclusion as to the botanical and geographical origin of kava, Vanuatu, with its current concentration of different varieties when compared with other kava-growing areas, apparently represents a major dispersal point for kava throughout the Pacific. It was from there that kava evidently spread initially into Fiji and ultimately to the rest of Polynesia and Micronesia. (This does not preclude the possibility of later reintroductions back into Vanuatu, which could account for some of the oral traditions pointing to an eastern origin for kava.)

If kava were to have originated from the west rather than in Vanuatu as some have suggested in the past, there have been no clear indications as to who might have been the first people to introduce it into Vanuatu. The first human immigrants in Vanuatu were presumably – but by no means certainly – what are now referred to as Lapita people. This culture spread into island Melanesia (and then also into Fiji, Tonga and Samoa) between 4,600 and 3,000 years ago (Bellwood 1987:48). Bellwood (1987:51) presumes that all of the present-day major plant foods (i.e. taro, yam, banana, breadfruit, coconut) were used by these people, who would necessarily have had agricultural capabilities. There is, indeed, plentiful linguistic evidence adduced elsewhere in this volume to show that the Proto Oceanians were agricultural.

Again assuming a possible western origin for kava, it might be tempting to suggest that *Piper methysticum* might have been introduced into Vanuatu, and from there to the rest of the Pacific, by the Lapita people when they arrived at least 3,000 years ago (Shutler & Shutler 1975:59). The Lapita people are fairly widely assumed to have been the speakers of Proto Oceanic (or its immediate and still closely related descendants). However, if the Proto Oceanians were indeed agricultural and brought with them yams, taros, breadfruit and bananas, this would not necessarily mean that they planted kava as well. It is logically possible that kava may have been a more recent introduction, spreading sometime between the arrival of the Lapita people in Vanuatu at least 3,000 years ago and the death of Roi Mata about 700 years ago.

Although I referred at the beginning of this paper to the reconstruction of **kava* as a Proto Oceanic term, this reconstruction is by no means unproblematical. I will return to this point later, but the only word for kava that can be assumed with any certainty to have any degree of antiquity in the Melanesian area is Clark's (n.d.) reconstruction of **maloku* in the language ancestral to probably all of the languages spoken between Efate and the Torres Islands in Vanuatu, that is, Proto North-Central Vanuatu. The details of the phonological histories of most of these languages are still so poorly known that we are not yet in a position to decide if all of the reflexes of putative **maloku* are regular reflexes of this original form rather than post-dispersal introductions via diffusion, but the wide variety in the shape of reflexes certainly suggests that the form is quite old, for example:

Merlav	*malop*
Maewo	*maloku*
Ambae	*malok*
Pentecost	*maloyu, mele*
North Malakula	*melo, malox, malok*
South Malakula	*namalək, merox, nəmarux*
Paama	*malou*
Epi	*miau, miou, mia, melek, mak*
Efate/Shepherds	*malok, namaloku, nmalok*

This evidence is therefore consistent with the more recent view of Lebot that kava represents a northern Vanuatu domestication of an initially wild plant. This domestication could be dated at the time of, or shortly after, the breakup of Proto North-Central Vanuatu, that is, about 3,000 years ago. Geraghty (pers.comm.) points out that **maloku* is also reflected in Fijian, though there it means 'quiet, subdued'. If this were the original Proto Oceanic meaning of **maloku*, the Northern and Central Vanuatu languages would have been adopting a common strategy in coopting a word with a similar meaning to refer to a new cultural development.

There are isolated areas in northern and central Vanuatu which do not reflect **maloku*, but these could easily represent later local innovations. Southern Paamese, for example, has *malou* as the regular reflex of **maloku*, while the closely related northern dialect has *vatimeāi*. This appears to be a very recent semantic shift, as the cognate form in the southern dialect (i.e. *vati-melāl*) means 'stem of wild kava (i.e. *Piper wichmanii*)'. Big Bay *naxai* from Santo looks as if it might originally have just meant 'wood, tree'. The only languages which widely reflect forms other than **maloku* are the languages of south-west Malakula, which seem to derive from an earlier form that had the approximate shape **mbVlVkVndrV*,[5] and the languages of the Torres and northern Banks Islands, which have forms of the general shape *(nV)ɣV*. As languages reflecting these forms are all spoken contiguously, however, these facts are consistent with the suggestion that these names could have diffused relatively recently, replacing an earlier reflex of **maloku*.

If kava did indeed originate in Vanuatu, then its occurrence in isolated pockets in Papua New Guinea must be explained, a fact which Lebot (1989:92) concedes to be problematic. Kava was presumably not introduced into Papua New Guinea directly from Vanuatu, or we would expect to find greater evidence of its use in the intervening Solomon Islands. It is, of course, possible that there have been a series of losses and reintroductions of both kava and betel nut over the millenia, with Solomon Islands having only relatively recently switched to betel-nut-chewing over kava-drinking. The same explanation might also account for the fact that kava-drinking on the mainland of Papua New Guinea is so patchy, with the largest area of kava-drinkers coming from the Western Province near the Irian Jaya border, well away from the nearest Austronesian-speaking people. Lebot (pers.comm.) mentions that the names for kava in some of those languages on mainland Papua New Guinea spoken in areas where kava is drunk also mean 'root'. Such a clear extension of meaning would also be compatible with the idea that kava represented a relatively recent introduction however; if kava were very old, we might expect its names to be rather more opaque.

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5 Until the phonological histories of these languages are better known, the vowels here will need to be unspecified. It is also worth pointing out that this could still be an irregular local reflex of **maloku*.

The word for kava in most areas of Fiji is *yaqona*, while in some areas the variants *qona* and *waqona* are found. This probably represents a semantic extension from earlier **kona* 'bitter'. Geraghty (pers.comm.) points out that there are a number other instances of **a-/ʔa-* with some kind of nominalising function in Fijian.[6] If we were to assume that kava was being drunk by the speakers of Proto North-Central Vanuatu, their descendants might be expected to have taken it with them on their canoes when they sailed off to colonise Fiji. The fact that Fijian does not share a cognate with the languages of Northern and Central Vanuatu suggests that perhaps kava also spread to Fiji after the initial settlement of these islands from Vanuatu.

Huffman (pers.comm.) reports oral tradition in Maewo as pointing to ancient contacts between Maewo and parts of the interior of western Viti Levu in Fiji. Lebot and Cabalion (1986:169) suggest on genetic grounds that there was probably traffic in kava backwards and forwards between Vanuatu and Fiji, as well as between Fiji and the islands of Polynesia. This non-linguistic evidence is also consistent with a post-settlement origin for kava on Maewo. The fact that the Fijians did not borrow the Maewo word for kava when they acquired it can perhaps be explained by the fact that if only a single canoe-load of people from Maewo were to land on western Viti Levu with a few cuttings of kava, we would not necessarily expect the Maewo word to be transferred. Local Fijian creativity could well have won out, with the word **kona* 'bitter' being coopted.

The oral tradition in Fiji does not fit so neatly with Vanuatu representing the point of origin for kava, as this generally gives a Tongan origin. However, some stories also report that while there was kava before its introduction from Tonga, it was either better varieties that were introduced from Tonga, or it was the elaborate kava ritual that came from the east. The Fijian word *tānoa* 'kava serving bowl' represents a Tongan borrowing, which would be consistent with the suggestion that kava could have been introduced more than once into Fiji, initially presumably from the west, and later again from the east.

Walsh and Biggs (1966:30) present the reconstruction of the word **kawa* 'kava' for Proto Polynesian as uncontroversial. If this reconstrucion is in fact correct, then we would need to assume that the Proto Polynesians arrived from Fiji in the Proto Polynesian homeland with kava in their kitbag. It is interesting to note that it was not a reflex of **kona* that the Proto Polynesians used, but an innovated form. One possible explanation is that Proto Polynesian **kawa* did not originally refer to kava, but that it meant 'bitter' or 'sour'. On Easter Island, where *Piper methysticum* was not known, the word *kava* means 'bitter'. While reflexes of **kawa* in East Futunan, East Uvean, Tongan and Samoan refer exclusively to *Piper methysticum*, its reflexes in Hawaiian, Marquesan, Rarotongan and Tuamotuan mean both 'sour' and '*Piper methysticum*'. Thus, we could also suggest that **kawa* in Proto Polynesian could just as easily have meant 'sour, bitter', with reflexes of this word later coming to refer independently to a newly introduced plant.

In discussing the origin of the form **kawa* in Proto Polynesian, there is another point that we should consider as well. Geraghty (pers.comm.) notes that **kawa* is also possibly cognate with the Fijian word *wāqawaqawa* '*Piper betel*', with *wā* in Fijian meaning 'vine',[7] and *wā(qa)qawa* '*Piper insectifugum* (?)'. While seemingly at odds, these two accounts are

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6 For example, *ʔalava* and *ʔariki*, both meaning 'chief'.

7 Analogy with this morpheme could be the explanation for the occurrence of *waqona* as a local variant of *yaqona* in Fiji, as noted above.

not necessarily in conflict. There is no reason why we cannot reconstruct **kawa* as having meant *both* '*Piper betel*' and 'sour/bitter' in Proto Polynesian. Anyone who has chewed a betel nut will detect a definite tang in the fruit, leaves or bark of this plant.[8]

It is still likely that the immediate descendants of the Proto Polynesians took kava with them when they ventured out into distant parts of the Pacific. Geraghty (pers.comm.) reports that the Ponapean word *sakau* and the Kosraean *suhka* represent fairly old borrowings from Polynesian **ta kawa*, suggesting a Polynesian rather than a Melanesian origin for kava in Micronesia. The first Polynesian migrants in New Zealand probably also brought kava with them, though it failed to grow in the colder climate. However, the plant *kawakawa* of the related *Macropiper excelsum* from a different genus (which the Maori used for medicinal purposes) is found there. The word *kawa* in Maori is also used to mean 'marae protocol', which would accord with kava having been previously used in a ceremonial context as we find in Polynesia today.

In the earlier discussion of the distribution of kava in Papua New Guinea, I omitted any detailed reference to the two islands in Manus Province where kava is also known, that is, Lou and Baluan. In Lou, kava is known as *ka*, while in Baluan it is *kau*. The mainland areas of New Guinea adjacent to the island of Karkar also exhibit apparent cognates of these forms, that is, *keu* and *kau*. The occurrence of these forms in non-Polynesian Oceanic languages was presumably the basis of the reconstructions by Grace (1969) and Blust (1972c) of a Proto Oceanic form for kava. However, the phonological similarity of these forms to reflexes of Proto Polynesian **kawa*, and the occurrence of apparently borrowed reflexes of this form in Ponapean and Kosraean suggests that the drinking of kava in Manus was possibly introduced from Polynesia via Micronesia, an interpretation which is also suggested by Lebot (1989:91).

While the linguistic evidence for kava having a fair degree of antiquity in northern and central Vanuatu is strong, as we would expect from the biological information, there is no linguistic evidence for kava having been present for this long to the south of Efate. The languages of Erromango, Tanna and Aneityum are well known for their tortured phonological histories, rendering many widespread Oceanic cognates almost unrecognisable. In Lenakel, Kwamera and West and South-West Tanna the word for 'kava' is *nɨkava* and on North Tanna it is *nɨka*,[9] while on Aneityum the word is simply *kava*. Sie, the only surviving language on Erromango, has *nayave*, again carrying the added initial syllable, but still reflecting essentially the same original root. This kind of evidence suggests that kava may not have been present in southern Vanuatu even while it was present in the north, and that it was only introduced much later via back migrations from Polynesia, and that the Polynesian words for kava were borrowed into these languages relatively recently.

Lebot (1984:9) notes that there is a major break in the distribution of kava varieties on either side of a line drawn between Efate and Erromango, which would be consistent with this claim that kava has a separate history in the south. There is also a major ocean gap between Efate and Erromango, which could explain why the earlier discovery of the

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8 Geraghty (pers.comm.) also points out that the forms *wāqawaqawa* and *wā(qa)qawa* would also be consistent with the reconstruction of a separate Proto Central Pacific form **qawa*, referring to some kind (or all kinds?) of *Piper* species, which would take these forms out of consideration in the history of the form **kawa* in Proto Polynesian.

9 An initial syllable beginning with *n-* is present in most nouns in the languages of Tanna.

pleasures of **maloku* (as well as the word) did not reach the southern islands at the same time.[10]

Huffman (pers.comm.) and Lebot (1989:93-94) report that oral tradition in the southern islands of Vanuatu points to Futuna representing the source of kava in these islands, with Tonga and Samoa representing the islands of origin further to the east. If this is in fact the case, it could be that kava was introduced into the southern islands of Vanuatu when the ancestors of the present-day speakers of Aniwa-Futunan – themselves already kava-drinkers – arrived from the east. The fact that it is even possible to trace the path taken by kava when it was introduced from Futuna to various parts of Tanna (Huffman, pers.comm.), whereas it is not possible to be so specific in the north, is also consistent with the proposition that kava represents a more recent introduction in the south.

While much of the evidence from linguistics, oral tradition and biology on the origin of kava falls together quite nicely, there are some problems. Perhaps the greatest is explaining the isolated pockets of kava-drinking in Papua New Guinea (and the Solomon Islands?) if domestication began in northern Vanuatu rather than in the west. In the case of most parts of the mainland of New Guinea, I have already suggested that these may represent backwards diffusions ultimately from northern Vanuatu.

Another logical possibility to consider is that *Piper methysticum* might have been domesticated more than once in Melanesia, though this is a possibilty that Vincent Lebot (pers.comm.) explicitly rejects on biological grounds. The fact that none of the various names given to kava in these isolated pockets (as set out in the appendix) are in any way suggestive of a northern Vanuatu source does not argue against a single source for domesticated kava, as we have already seen that Fijian and the Polynesian languages apparently evolved innovated names though the plant itself was clearly introduced.

Another interesting question is the reconstruction by Lynch (1982a) of the Proto Southern Vanuatu word **npali* 'betel nut'. The people of Tafea today do not chew betel nut,[11] and Lindstrom (pers.comm.) points out that there is no archaeological evidence for lime-making in Vanuatu, so it is unlikely that the people of the southern islands were ever betel-nut-chewers. If they had a name for the palm, it may be that they used it instead for building, as the split trunks make good walls and floorboards. Lindstrom (pers.comm.) also points out that there are a number of *Areca*-like species on Tanna, all producing useless nuts, so it could also be that Lynch's reconstructed form **npali* actually refers to a different palm altogether.

There are obviously limits to what historical linguistics and non-linguistic evidence can tell us about the distant past. We may never know with absolute certainty where kava was first drunk, when and by whom, and how it was first discovered. In this discussion, I have examined the linguistic evidence and tried to interpret this with what archaeology, oral tradition and botany can tell us. The overall conclusion is that kava-drinking was most probably introduced fairly early on, following the routes indicated on Map 3, and that it was not a Proto Oceanic plant at all.

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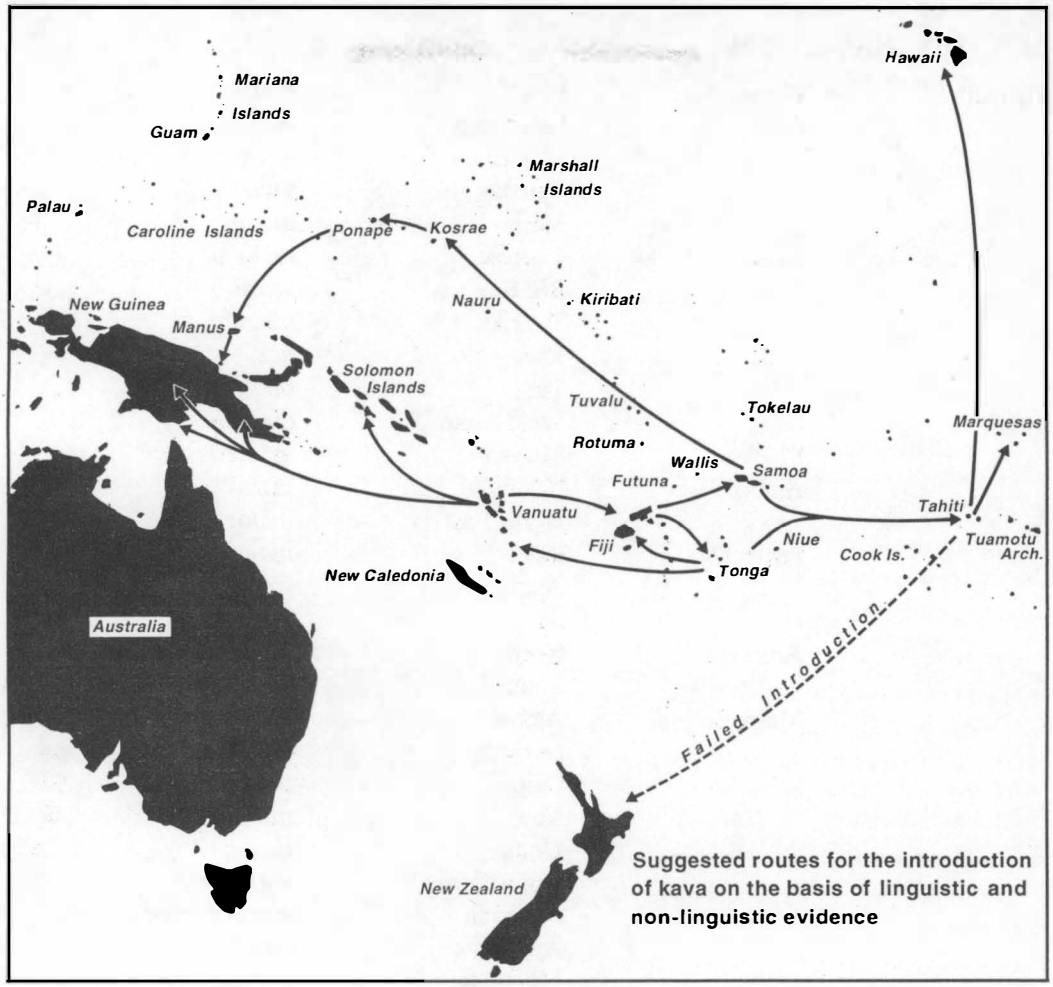
10 Linguistically, of course, the southern islands of Vanuatu are something of a mystery, and it is difficult to know how to interpret the lack of close relationship of these languages to other Oceanic languages in terms of the non-linguistic evidence on the settlement of the Pacific.

11 In fact, they refer to betel nut in Bislama as *rabis kokonas* 'useless coconut'.



MAP 3: SUGGESTED ROUTES FOR THE INTRODUCTION OF KAVA ON THE BASIS OF LINGUISTIC AND NON-LINGUISTIC EVIDENCE

This is a conclusion that was only possible by considering linguistic and non-linguistic evidence at the same time. Considering the linguistic evidence in isolation in the past has resulted in the probably erroneous reconstruction of Proto Oceanic kava-drinking. If we linguists want archaeologists to take our attempts at cultural reconstruction seriously, we have to put our house in order and attempt to seriously consider the archaeological implications of our reconstructions. If we are going to argue that the Proto Austronesians, for example, were metallurgists, then we must try to accommodate these people at an appropriate time and place where metallurgy is known to have been practised. Alternatively, we have to persuade archaeologists to dig deeper in other places and in other strata to see if they can uncover evidence of cultural practices suggested by the linguistic evidence but for which archaeology so far offers no clues.

APPENDIX: KAVA TERMS

Vanuatu	Torres	Hiw	*niʏui*
	Banks	Lehalurup	*nʏa*
		Motalava	*naʏa*
		Vatrata	*ʏwie*
		Merlav	*malop*
	Santo	Tasmate	*malohu*
		Big Bay	*naxai*
		Tasiriki	*malou*
		Malo	*hae*
		Tur	*bir*
		West Santo	*malohu*
	Maewo	Marino	*maloku*
	Ambae	Nduindui	*malok*
		North-East	*maloʏu*
	Pentecost	Raga	*maloʏu*
		Apma	*sini*
		Sa	*mele*
	Ambrym	North	*lewe drawe*
		South-East	*kava*
	Malakula	Atchin	*melo*
		Leviamp	*malk*
		Uripiv	*melu*
		Vao	*malok*
		Unua	*malok*
		Big Nambas	*malox*
		Nasarina	*nambolakəndra*
		Ajiauleina	*amelkaj*
		Mbotkote	*nemelakaj*
		Natanggan	*nimala-gandrə*
		Nioleien	*namalək*
		Ninde	*nəmbulloʔore*
		Nahava	*nimbulund*
		Nāti	*nəmbunʔundr*
		Naha'ai	*namaluʔ*
		Navwien	*malux*
		Akhamb	*namwelxundr*
		Nasvang-Farun	*namwilungg*
		Nisvai-Vetbong	*namwilungg*
		Avokh-Marpagho	*nəmarux*
		Uliveo	*manggmangg*
		Port Sandwich	*maix*
		Banam Bay	*namonggomongg*
		Mbwenelang	*monggmongg*
		Aulua	*monggmongg*
		Panggumu	*merox*

	Paama	North	*vatimeāi*
		South	*malou*
	Epi	Lewo	*miau*
		Lamenu	*mia*
		Baki	*mio*
		Maii	*mak*
		Bierebo	*miok*
		Bieria	*melek*
	Efate-Shepherds	Nakanamanga	*namaloku*
		Namakira	*malok*
		South Efate	*nmalok*
		Mele-Ifira	*kava*
	Tafea	Erromanga	*naɣave*
		North Tanna	*nɨka*
		Lenakel	*nɨkava*
		South-West Tanna	*nɨkava*
		Kwamera	*nɨkava*
		Whitesands	*nɨkava*
		Futunan	*khava*
		Aniwa	*kava*
		Aneityum	*kava*
Polynesia		Proto Polynesian	**kawa*
		Rapanui	*kava* 'bitter'
		East Futunan	*kava*
		East Uvean	*kava*
		Tongan	*kava*
		Hawaiian	*ʔawa* '+ sour'
		Maori	*kawa* 'sour'
		Marquesan	*kava, ʔava* '+ sour'
		Rarotongan	*kava* '+ sour'
		Tuamotuan	*kava* '+ sour'
		Samoan	*ʔava*
		Fijian	*yaqona, qona*
Micronesia		Ponapean	*sakau*
		Kosraean	*suhka*
Papua New Guinea	Manus	Lou	*ka*
		Baluan	*kau*
	Madang	Karkar	*ayuw*
		Bogadjim	*kial*
		Bongu-gorendu	*keu, kau*
		Gende	*karangimi*
	Southern Highlands	Lake Kutubu	*tokarabu, sagainya, waki, kewato*
	Western	Gogodala	*sika*

	Kiwai	*gamad, gámada, gumada, wáriki*[12]
	Mowata	*komata, gámoda*
	Oriomo	*irka*
	Keraki	*kurar*
	N'gowugar	*koriar*
	Kanum-irebe	*ten, ttä, kä*
	Jei-anim	*bikwe*
	Marind-anim	*wáti*
	Maklenga, Jilmak	*jéliki*
	Jabga	*dikoi, jéliki*
	Komolom Island	*tóe, túe, túi*
	Frederick Henry Island	*tóe, tówe, tóá, tigwa*
Oro	Mapi River	*wághi, bári*
	Binandere	*pingi*

12 The meaning of the various diacritics in the Papua New Guinea examples is not explained in the sources from which these examples were taken. Most of these attestations are taken from the work of Vincent Lebot, and from Lebot and Cabalion (1986).

Crowley, T. "Proto who drank kava?". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change.*
C-127:87-100. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.87*

SAGO AND RELATED ITEMS IN EARLY AUSTRONESIAN VOCABULARY

TOM DUTTON

1. INTRODUCTION

1.1 AIM

Proto Malayo-Polynesian (PMP) vocabulary as presently reconstructed contains a number of reconstructions for sago and other items whose reflexes in different languages are semantically interconnected. They thus form a natural terminological set in that the study of one involves consideration of or reference to one or more of the others in the set. This set is that represented by the following reconstructions first proposed for "Uraustronesisch" (=PMP) by Dempwolff (1938): **rumbia*[1] 'sago palm', **sa(ŋ)gu* 'sago (flour)'[2] and **qatep* 'thatch'.[3] These items are well known to Austronesianists although generally only individually. That is, they have not hitherto been discussed as a set, although much of the same evidence as that presented here has been used by Blust in working up his proposed Proto Austronesian (PAN) addenda and etymologies (Blust 1970, 1972c, 1980a, 1983-84a, 1986, 1989a) and Austronesian homeland article of 1984-85. It is therefore the purpose of this paper to take this set of items and examine them from a semantic field point of view to see whether the phonemic shapes of presently proposed reconstructions and the wording of their presently proposed reconstructed glosses accurately reflect the phonemic shapes and meanings of the witnesses available, and if not, to suggest possible refinements. In the process the interconnection of the items concerned will be demonstrated and how they have persisted or changed over time and in different places. Finally an attempt will be made to draw historical and other inferences about the horticultural and other practices of prehistoric Austronesian populations from the reconstructed set.[4]

Before taking up these tasks, however, an explanatory word about 'sago'.

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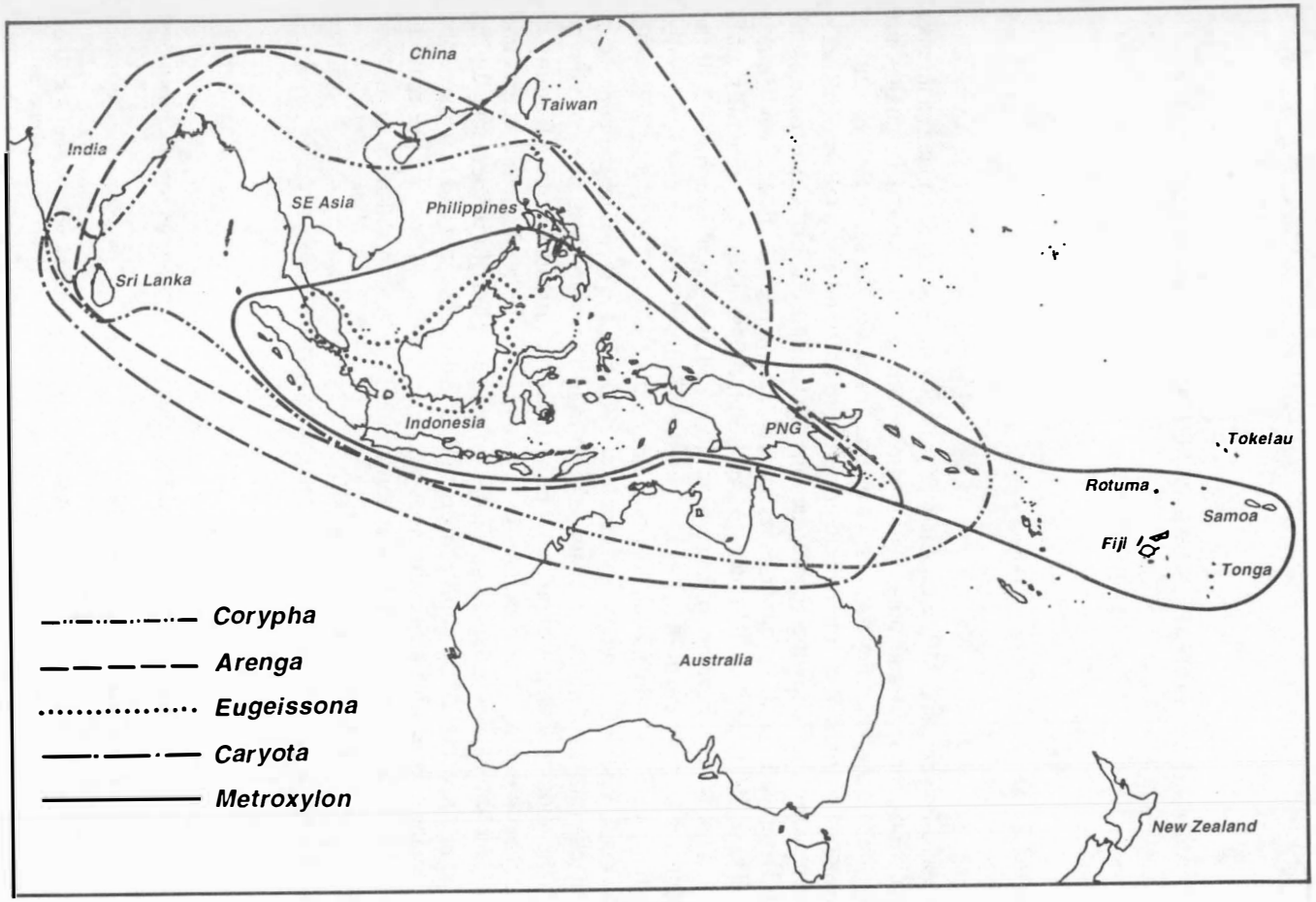
1 In presenting these items I use Dyen's practical orthography but without the various subscripted phonemes he proposed.

2 Dempwolff's gloss is actually 'pith of a plant, sago' but as I argue later the comparative evidence suggests that this actually referred to sago starch or flour.

3 Excluded from this set for the time being is Dempwolff's PMP **meñak* 'fat' and **biRaq* 'a kind of plant'. These have so far only been found to interconnect semantically with the above set in one instance each, viz. for **meñak* in Mbula (Western Oceanic) *meene* 'sago palm, starch' (Bugenhagen, pers.comm.) and for **biRaq* in Buru (Central Malayo-Polynesian) *bia lahin* 'sago palm' (Tryon, ed. 1994:08.810fn.). However, it seems to me that further reflexes of **meñak* with the meaning 'sago palm, sago starch' are likely to be found as 'fat' is closely connected with 'taste, essence' in Pacific cultures. For a list of presently available reflexes of **meñak* see Appendix 3.

4 The stimulus for this study comes from an earlier one of mine on foodstuffs and associated agricultural terms in Papua (Dutton 1973).

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 101-125.
Pacific Linguistics, C-127, 1994.



MAP: DISTRIBUTION OF OLD WORLD PALM GENERA USED FOR SAGO MAKING
(after Ruddle et al. 1978:6)

1.2 SAGO

The English word 'sago', unless qualified by 'palm', 'tree' or some other word, refers to the starch or flour that is extracted from a number of palm taxa that occur naturally throughout the tropics – see Figure 1. According to botanists these palms attained their world-wide distribution millions of years before man became a factor in plant distribution. At least fourteen species of sago palm are exploited for their starch and other products around the world. These belong to eight genera although only five of them – *Arenga*, *Caryota*, *Corpyha*, *Eugeisson* and *Metroxylon* – are found naturally in the Austronesian world. Of these the *Arenga* and *Metroxylon* are the most common and *Metroxylon* the most commonly processed. These palms occur thoughout most of the area occupied by Austronesians – from Samoa, Tonga and Fiji in the east to the Asian mainland in the west – see map. In most of these areas sago palms are economically important but are only one of a number of economically important palms, for example, coconut palms, areca nut palms, nipa palms, the latter of which grow wild in much the same locations as sago palms and provide supplementary foods and building materials.

Prehistorically the importance of sago to local economies derived from the following features:

(i) Sago palms occurred naturally in extensive low-lying coastal freshwater swampy areas although some species tolerate elevations up to 800m (Ruddle et al. 1978:47). Sago palms were thus very accessible, were not cultivated (although they are (or were) planted both within and outside their natural range of habitat), and were always there for the taking – in today's terms, an important renewable resource.

(ii) Besides starch the palms also provided materials for house construction and the manufacture of weapons, artefacts and even clothing. Some varieties also provided medicines and magic potions.

(iii) Sago palms may be harvested at any time of the year when the plant is preparing to flower or soon afterwards. At this time the amount of starch stored in the plant is at a maximum. Sago production is therefore environmentally friendly as only palms that are about to flower or are flowering are removed. Sago palms take about 8-15 years to mature and die once they have flowered if not harvested. They regenerate naturally by suckering.

(iv) "Sago production is a highly efficient means of provisioning a community" (Ruddle et al. 1978:64). In terms of the man-hours required to produce one million calories it is estimated that sago production outranks sedentary agriculture or hunting and gathering and is on a par with shifting cultivation (ibid., p.64).[5]

(v) Sago starch is a useful foodstuff because it can be stored in a processed state for longish periods or may be kept in an unprocessed state (e.g. as logs in water or under dampened leaves) until needed (Ruddle et al. 1978:27).

(vi) Although sago is nutritionally speaking a poor quality food it can generally be supplemented by or garnished with other foods that occur in the same area, for example, fish and other aquatic animals, nuts, grubs (often cultivated in fallen sago palms), bamboo shoots, ferns, fungi and the young tender inner leaves (or 'cabbage') of the sago palm itself.

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5 There is considerable variation in the amount of starch produced by different species of palms in different locations, but on average palms at flowering produce between 70 and 150 kg (Ruddle et al. 1978:Table 3).

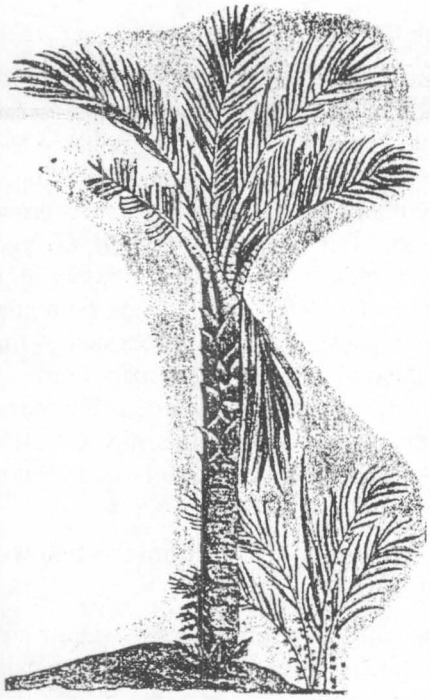

FIGURE 1: A SAGO PALM
[after Barrau (1959:152)]

FIGURE 2: *Tacca pinnatifida*

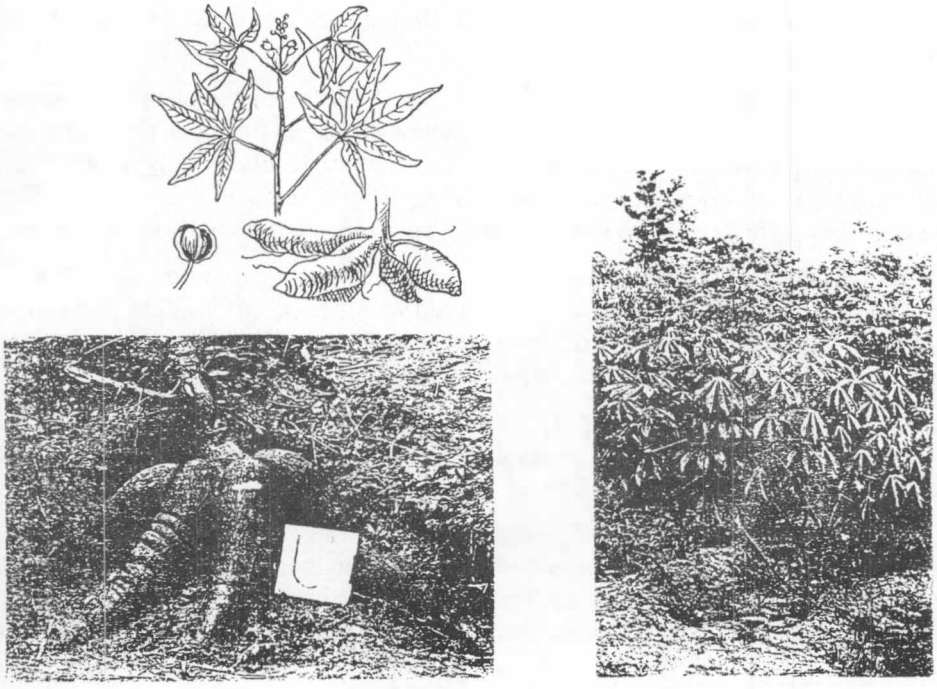

FIGURE 3: *Manihot esculenta*

(vii) The tools required for obtaining and processing sago are non-specialised or are easily fashioned from locally available materials or other tools.[6] Processed sago is also easily prepared for eating by roasting, baking, frying or boiling, most of which activities can be carried out with locally available materials such as bamboo and the large leaves of certain plants.

Thus areas in which sago palms are found in some quantity provide the basic necessities of life[7] – a kind of traditional equivalent of the modern supermarket. It seems natural to assume therefore that this resource would have been utilised by Austronesian travellers-cum-colonisers, and indeed, could well have been an important factor in the method of expansion of Austronesians. Provided the environment remains much the same from place to place (and it does until coral atolls are reached) it is reasonable for travellers to expect that they will find sago and associated foodstuffs wherever they go. That implies that one need not be restricted in one's movements by the storage life of other perishable foodstuffs.

1.3 METHOD AND ASSUMPTIONS

For the purposes of this paper cognate sets have been established using a 'top down' approach. In this approach previously suggested protoforms have been taken as a starting point and decisions made about cognacy or otherwise on sets of correspondences based on currently available accounts of the historical phonologies of individual languages or of particular subgroups of languages. These correspondence sets are set out in Appendices 1 and 2. This does not mean, however, that all putative witnesses reflect only these proto-sounds – some may reflect other sounds as well. Thus, for example, Tagalog and Maranao *g* reflects both PAN **R* and PAN **g*. Nor does it mean that every putative cognate necessarily reflects an etymon exactly as expected – there are sometimes exceptional reflexes and unexplained changes.

In checking the proto-meanings of etyma as presently suggested I use a method of semantic reconstruction that combines some elements of lexical reconstruction, as proposed by Dyen and Aberle (1974), with principles of semantic reconstruction proposed by Blust (1987a). Significant technical terms used in applying this method are:

> *Candidate*: the highest-order etymon of a set of cognates with members in different subgroups;
>
> *Included*: one candidate is said to be included in another if that candidate appears in a list of subgroups that is a subset of the list of subgroups in which the other candidate appears. A candidate which is not included by any other is unincluded.

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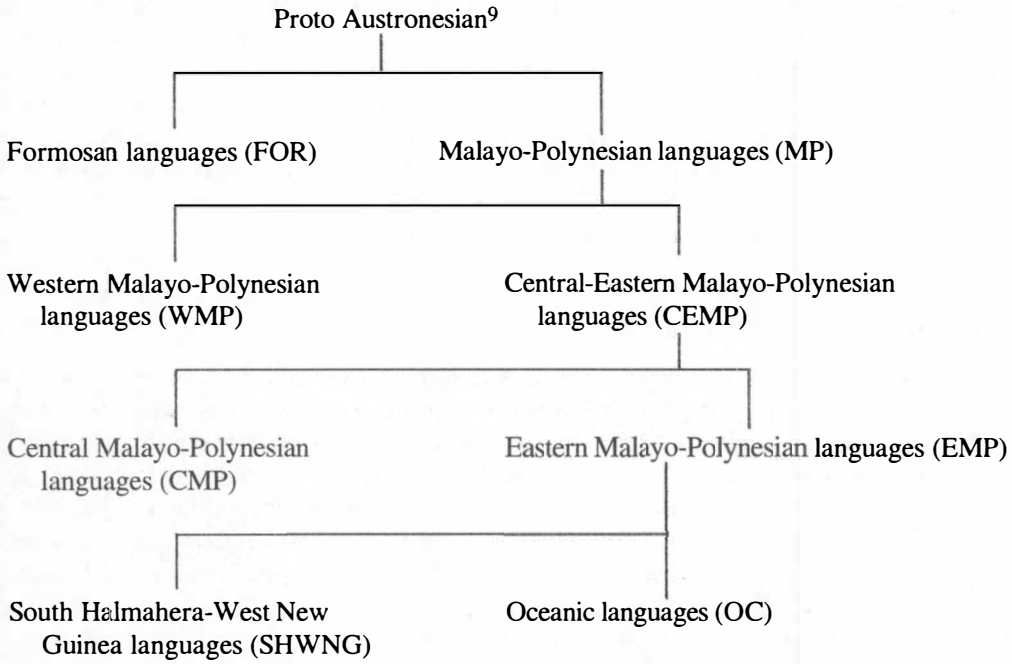
6 Sago palms are (or were) felled with an axe or adze. The starch is (or was) then extracted by pounding the pith with an adze or wooden or bamboo mallet and then washing the pounded pith in water and allowing the starch to settle out in vessels made from parts of the palm frond. Depending on locality sago may be extracted in situ or logs may be transported (usually by floating downstream) to more favourable locations.

7 As Ruddle et al. (1978:64) point out estimates of yields of sago palms "must be regarded with a good deal of caution, as the length of time to maturity and the harvest of palms at various stages of maturity in any tract make estimation of productivity per hectacre very difficult". In fact estimates of productivity by different researchers in different geographical areas range between 7 and 330 palms per hectare per year (Ruddle et al. pp.61-62). Barrau (quoted in Ruddle et al. p.61), for example, estimates that a one-hectare "normal swamp forest stand" produced about 52 harvestable palms annually in Irian Jaya.

An unincluded candidate is inferred to have had the meaning of the list in which it is found.

In applying this method and also in making decisions about the provenience of etyma I use Blust's (1987a:90-91) hypotheses about first-order subgroups of Austronesian languages represented by the following family tree diagram:[8]



Oceanic languages are further divisible into a number of first-order subgroups (although there is still only a modest amount of agreement amongst Oceanists about their number and relative ordering). The following are taken from Tryon's (1994, ed.) overview: the Admiralty Islands (ADM) languages, Western Oceanic (WOC) languages (of Papua New Guinea and the north-west Solomon Islands), Central-Eastern Oceanic (CEOC) languages (of the south-east Solomon Islands, Micronesia and the rest of the Pacific). The latter are further divisible into the South-East Solomon Islands (SES), Eastern Outer Islands (EOI),

8 These differ from the views presented in Reid (1982) for example. There he argues that at least the North Philippine languages constitute a primary subgroup, called Outer Philippines, distinct from the Malayo-Polynesian languages of Indonesia and Oceania. Furthermore no one seriously believes in PWMP any longer – WMP is a convenient geographical label. However, for present purposes it is convenient to refer to PWMP.

9 In this chart Formosan languages include one or more primary subgroups in Taiwan, here treated as a genetic unit; Malayo-Polynesian languages include all extra-Formosan Austronesian languages; Western Malayo-Polynesian languages include all the Malayo-Polynesian languages of Botel Tobago Island, the Philippines, the Marianas, Belau, Sulawesi and its satellites, Borneo, Sumatra, Java, Bali, Lombok and western Sumbawa, Malaya, Vietnam and Kampuchea (Chamic), and Madagascar; Central-Eastern Malayo-Polynesian languages include all other Malayo-Polynesian languages; Central Malayo-Polynesian languages include the languages of eastern Indonesia from eastern Sumbawa (Bimanese) eastwards through the Lesser Sunda chain and northwards to the central Moluccas (Seram, Ambon, Buru, the Sula Archipelago); Eastern Malayo-Polynesian languages include all other Central-Eastern Malayo-Polynesian languages; South Halmahera-West New Guinea languages include the Austronesian languages of Halmahera and of the north coast of New Guinea as far as the Mamberamo River, together with the Raja Ampat Islands; Oceanic languages include all the Austronesian langauges of Melanesia, Micronesia and Polynesia except those belonging to subgroups already mentioned.

Micronesian (including Kiribati, Marshallese, Ponapean, Woleaian) (MIC), North-Central Vanuatu (NCV), Southern Vanuatu (SV), New Caledonia (NC), and Central Pacific (CP) which includes, amongst others, the Polynesian (PN) languages.

In keeping with the comparative method, cognates are only attributed to an etymon at that node in the family tree that immediately dominates the subgroups containing the languages in which the witnesses are found. Thus, following the subgrouping hypothesis outlined above an etymon can only be attributed to Proto Austronesian if witnesses are found in a Formosan language and a Malayo-Polynesian language.

1.4 MATERIALS

The data on which this paper is based were obtained from both published and unpublished sources.

Published sources include dictionaries of individual languages, linguistic publications listing reconstructions proposed for various interstage protolanguages within Proto Austronesian and several specialised botanical works which contain, amongst other information, local names for sago and other plants involved in this study. Unpublished sources include unpublished manuscripts on relevant languages or topics, fieldnotes, vocabulary lists and information of my own and of others with relevant specialist knowledge.[10] Where items were initially obtained from botanical works these have been checked against information given in published dictionaries wherever possible. Botanical and other information was obtained from a number of general and specialised works listed in the Combined Bibliography.

1.5 CONVENTIONS

In setting out and discussing the results of this study the following conventions and procedures have been adopted:

1. Contemporary language material is quoted as obtained from the sources used except that *ʔ* is used for glottal stop and *u* for *oe* in Dutch sources;

2. The following abbreviations are used for languages and protolanguages:

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10 I am deeply indebted to the following for their assistance in this regard: John and Marjorie Beaumont, Alan Brown, Robert Bugenhagen, Sandra Callister, John Clifton, Bryan Ezard, Jim and Cindy Farr, David Lithgow, Ramona Lucht, Ken McElhannon, Cliff Olson, John Roberts, Gerhard Tauberschmidt, and David and Fran Wakefield of the Summer Institute of Linguistics; Alexander (Sander) Adelaar, Alan Jones, Roger Keesing, Don Kulick, Robert Langdon, John Liep, Ling Matsay, Martha McIntyre, Mark Mosko, Nigel Oram, Andrew Pawley, Lawrence Reid, Malcolm Ross, Darrell Tryon, James Weiner and Michael Young of the Australian National University (or affiliated with it at the time); Rick Goulden, Sue Holzknecht, Paul Li, Naomi McPerson, Otto Nekitel, Rev. Rufus Pech, Gunter Senft, Geoff Smith and Bil Thurston of other institutions; and Dumo Tom and 'Thomas' (a driver of the University of Technology, Lae) of Papua New Guinea. I am also indebted to Sander Adelaar, Bob Blust, Jim Fox, Paul Geraghty, John Lynch, Andrew Pawley, Laurie Reid, Malcolm Ross, Darrell Tryon and Dave Walsh for commenting on an earlier version of this paper and/or for providing additional information. None but myself is to be held responsible for any errors or misinterpretations in this paper, however.

ADM	Admiralty Islands
ARE	'Are'are
ARI	Arifama-Miniafia
ARO	Arosi
BAG	Bagobo
BAK	Bakumpai (=Ngaju Dayak)
BGO	Bugotu (Lengu, Nginia)
BIK	Bikol
BIS	Bisaya
BIS(C)	Central Bisaya
BMA	Basima
BON	Bontok
BUR	Buru
CEB	Cebuano
CEMP	Central-Eastern Malayo-Polynesian
CEOC	Central-Eastern Oceanic
CMP	Central Malayo-Polynesian
CP	Central Pacific
DBU	Dobu
EMP	Eastern Malayo-Polynesian
EOI	Eastern Outer Islands
FIJ	East Fijian
FIJ(W)	West Fijian
FOR	Formosan
GOR	Gorontalo
HOV	Malagasy
IAM	Iamalele
IDU	Iduna
ILK	Ilokano
IND	Bahasa Indonesia
ISN	Isneg
IWA	Iwal
JAB	Jabem
JAV	Javanese
KAD	Kadazan (N.Borneo)
KAL	Kalauna
KGA	Kalinga
KLA	Kilivila
KWE	Kwara'ae
KWO	Kwaio
LAU	Lau
LON	Loniu
MAL	Malay
MAL(A)	Ambonese Malay
MBO	Manobo
MBU	Mbula
MIC	Micronesian
MIN	Minangkabau
MIS	Misima
MP	Malayo-Polynesian
MTU	Motu
MUY	Muyuw
NC	New Caledonia
NCV	North-Central Vanuatu
NGD	Ngaju Dayak
OC	Oceanic
PAN	Proto Austronesian
PCMP	Proto Central Malayo-Polynesian
PCP	Proto Central Papuan
PEMP	Proto Eastern Malayo-Polynesian
PMP	Proto Malayo-Polynesian
PN	Polynesian
POC	Proto Oceanic
POC(P)	Proto Oceanic (Pawley 1972)
POC(R)	Proto Oceanic (Ross 1988)
PPH	Proto Philippines
PPN	Proto Polynesian
PPT	Proto Papuan Tip
PWMP	Proto Western Malayo-Polynesian
ROT	Rotuman
RTI	Roti
SAA	Sa'a
SAM	Samoan
SAN	Sangir
SES	South-East Solomon Islands
SHWNG	South Halmahera West New Guinea
SIK	Sikayana
SUD	Sud-Est
SUL	Sulu
SV	Southern Vanuatu
TAE	Tae' (South Sulawesi)
TAG	Tagalog
TAH	Tahitian
TAW	Tawala
TBB	Toba Batak
TET	Tetun (Timor)
TID	Tidung Dayak
TLO	Tolo
TOA	Toambaita
TOK	Tokelauan
TOL	Tolai

TON	Tongan	WMP	Western Malayo-Polynesian
TUV	Tuvaluan (Ellice Is)	WOC	Western Oceanic
UBI	Ubir	YAM	Yami
WAR	Waropen		

Other more general conventions are:

*	established or proposed reconstruction
**	anticipated or expected but non-occurring reflex

2. THE COGNATE SETS

(1) **rumbia*

Area	Form	Meaning	Lg/Dialect	Source
FOR	No known reflexes			
	**rumbia, *Rambia*	sago palm	PMP	Blust (1989a)
WMP				
	lumbái	*Metroxylon sagu*[1]	Bisaya	Merrill (1923-26,1:145)
	lumbiá	*Metroxylon sagu*	C.Bisaya, Bagobo	Merrill (1923-26,1:145)
	lumbiág	*Metroxylon sagu*	Sulu	Merrill (1923-26,1:145)
	lumbiya	*Metroxylon sagu*	Cebuano	Wolff (1972)
	**ruNbi.a*[2]	sago palm	Proto Philippine	Sneddon (1984:83)
	rumbiya	sagu of Pohon sagu (sago or sago tree)	Malay	Stibbe (1919:671)
	rumbia	scoop sago out of its trunk	Malay	Wilkinson (1932), Winstedt (1963:323)
	rumbia	*Metroxylon sagu*, leaves	Bahasa Indonesia	Labrousse (1985:697)
	rumbia	die Sagopalme	Toba Batak	Warneck (1977:210)
	rumbia	*Metroxylon* sp.	Minangkabau, Toraja and others[3]	Heyne (1950:330)
	umbizo	sago tree	Kadazan	Antonissen (1958)
	tumba, tumbaNo	sago palm	Gorontalo	Tryon (ed. 1994:08.810fn.)
	hambie	sago palm	Bakumpai (=NgD)	Kawi (1985)
	lumbioh	sago	Tidung Dayak	van Genderen Stort (1916)
	humbia	sago palm	Sangir	Steller & Aebersold (1959), Heyne (1950:330)
	**Rumbia*	sago palm	Proto Sangir	Sneddon (1984)
	rumbia	large *Colocasia* sp. used for pig food	Tae'	van der Veen (1940)
	rombia	*Colocasia* sp.	Pu'u Mboto dialect of Bare'e	van der Veen (1940:532)
	**rumbia*	the sago palm, *Metroxylon* spp.	Proto S.Sulawesi	Mills (1975)

1 This is the same as *M. rumphii*. Merrill (1946) lists *Caryota* spp. and *Arenga* spp. as also occurring but the local names given are not cognate with those given here.

2 Sneddon (1984:5) notes that quoted PPH reconstructions are taken from Zorc (1971, 1982, and pers.comm.) and Charles (1973, 1974).

3 Heyne (1950:330) also gives *rambia* for Talaud and as a variant of *rumbia* for Malay.

CMP	*lupia, ripia*[1]	sago	Central Maluku	Collins (1983)
	rumbia	a palm tree	Tetun (Timor)	Morris(1984)

1 Dempwolff also gives *rofia* 'Espèce des palmier très commun à Madagascar...*Sagus raphia*' for Malagasy but this is most likely a borrowing as it is not of the expected form ***humbia* (Adelaar, pers.comm.).

OC				
	**rabia*	sago	Proto Oceanic	Ross (1988:159)
(ADM)	*api* (and related forms)	sago	Admiralty Is	Z'Graggen (1975:165)
(WOC)[1]				
	lábi	sago palm, sago starch thatch	Jabem	Streicher (1982:275) Tryon (ed. 1994:07.520)
	lambi	sago starch	Iwal	Thomas (pers.comm.)
	labiya	sago palm, sago starch	Dobu	Lithgow (pers.comm.)
	labia	sago palm	Kalauna, Basima	Young (pers.comm.)
	**rabia*	sago	Proto Central Papuan	Ross (1979)
	rabia	sago	Motu	Lister-Turner & Clark (c.1954)
	labia	sago palm, sago starch, thatch	Iamalele	Beaumont (pers.comm.)
	labiya	sago palm, sago starch	Misima	Callister (pers.comm.)
	labiya	starch	Iduna	Lucht (pers.comm.)
	yabiya	sago palm, starch	Muyuw	Lithgow (pers.comm.)
	rafi	sago starch	Ubir	Money (1907)
	rafiy	sago palm, starch	Arifama-Miniafia	Wakefield (pers.comm.)
	yabia	sago palm, thatch	Kilivila	Senft (pers.comm.)
	yambiya	sago starch	Sud-Est	Anderson (1990:101)
	labia[2]	sago palm	Tolai	Lanyon-Orgill (1960:219)
(SES)				
	laibia, naibia[3]	manioc	Kwaio	Keesing (pers.comm.)
(CP)				
	yabia[4]	*Tacca* sp.	Fijian	Pawley (pers.comm.)

1 Not included in this listing are a number of suspected or known borrowings in non-Austronesian languages in Papua New Guinea. For example, *rambi* 'sago palm' in Kovai (Umboi Is) (Brown, pers.comm.). *Rabak* 'sago palm leaf stalk' in Mbula, an Austronesian language of the same island is also a borrowing from an as yet unidentified source. Its form suggests that it may be a re-borrowing from a non-Austronesian language (Ross, pers.comm.).

2 Lanyon-Orgill (1960:153) also gives *iabia* for 'arrowroot, *Tacca pin.*' in Tolai but this is most likely a borrowing as it is not of the expected form.

3 There is also a word *abiburu* in Arosi meaning 'make torch with sago palm leaves' which looks as if it could be related to these reflexes. However, if so, it has an unexplained shape as the expected reflex is ***rabiburu.*

4 This is the base for a number of other derived forms in Fijian: *niu yabia* 'arrowroot palm', *yabia ni vavalagi*(lit. 'European arrowroot'), '*Maranta* sp., *Manihot* sp.', *yabia damu* '*Manihot* sp.', *yabia vula* '*Manihot* sp.'.

(2) **sa(ŋ)gu*

Area	Form	Meaning	Lg/Dialect	Source
FOR	No known reflexes			
WMP				
	sagó	sago starch	Tagalog	English (1965)
	sago	juice	Tagalog	Dempwolff (1938)
	sagu	starch from the sago palm *(lumbiya)* and the *buri* palm *(buri)*	Cebuano	Wolff (1972)
	sagó	a herbaceous plant, the roots of which are cooked and eaten	Pangasinan	Benton (1971)
	sagu	the arrowroot[1]	Ilokano	Constantino (1971)
	sakul	to make sago	Manobo	Elkins (1968)
	sagú	*Metroxylon* spp.	Manobo	Merrill (1923-26, 1:145)
	sagó, sakú	*Wikstroemia* spp.	Manobo	Merrill (1923-26, 3:142)
	sagú	*Metroxylon* spp.	Bisaya	Merrill (1923-26, 1:145)
		Maranta spp. (arrowroot)[1]	Bikol, Ilokano	Merrill (1923-26, 1:250)
		Wikstroemia spp.	Tagalog	Merrill (1923-26, 3:133)
	**sagu'*	sago	Proto Malayic	Adelaar (1992)
	sagu[1]	sago starch	Malay	Wilkinson (1932)
	sagu	pearl sago	Malay	Winstedt (1963)
	pohon sagu	*Metroxylon* sp.	Malay	Heyne (1950:330)
	sagu	sago palm (*Metroxylon* sp.), pith of sago palm	Malay (IND)	Labrousse (1985)
	sagu'	balls of cooked sago	Iban	Zorc (1982)
	sagu	Mark (= marrow, pith, core), Mehl der sago-haltigen Pflanzen	Toba Batak	Warneck (1977)
	sago	plant pith, sago starch	Ngaju Dayak	Dempwolff (1938)
	saku	corn, maize	Malagasy	Dempwolff (1938)

manaku (< root: *saku*)	to cook sago till hard	Kadazan (N.Borneo)	Antonissen (1958)
sago	*Adenanthera pavonina L.*[2]	Minangkabau	De Clercq (1927: Item 64)
sagu[3]	*Metroxylon* spp.	Ambonese Malay	De Clerq (1927: Item 2670)
sagu	sago starch	Javanese	Matsay (pers.comm.)
saku	*Metroxylon* sp.	Nias	Heyne (1950:330)
**sakul*	beat sago with wooden hammer	Proto Sangir	Sneddon (1984)
sakulë	sago kloppen (= sago beat)	Sangir	Steller & Aebersold (1959)

1 This provides the base for *sagu Bèanda* 'arrowroot' (lit. 'sago Holland', i.e. 'Dutch sago') in Malay also (Windstedt 1963). Like 'sago' the term 'arrowroot', unless qualified by 'plant' or some other word, refers to the starch that is made from a number of plants that belong to quite different genera. In the Pacific there are four genera of plants to which the term is applied. The most significant of these is the so-called *Tacca pinnatifida* or 'Polynesian arrowroot' – see Figure 2. This is native to Africa and Asia and was introduced to Australia and the Pacific (along with other economic species) by man "from Malaysia" (Merrill1954:217): "The root of this plant, properly prepared, makes an excellent strong jelly, like a blanc mange, of the nature of salop, for which it is justly admired by these islanders" (p.349).
The other genera of plants that are commonly referred to as 'arrowroot' include *Maranta arundinaceae*, *Canna edulis* or so-called 'Queensland arrowroot', and *Manihot esculenta* – see Figure 3 – all three of which are of South American origin and are post-Magellan introductions. Of these the most common is *Manihot* which is commonly known as cassava or manioc and from which tapioca is made. Austronesian names for these are generally based on the English words 'arrowroot' (e.g. *aruru* (Chamorro), *arurú* (Tagalog), *garut* (Javanese), *arurut* (Tok Pisin, 'Are'Are)), 'tapioca'(e.g. *tavioka* (Fiji), *tapiok* (Tolai, Tok Pisin)), manioc (e.g. *maniok* (Tok Pisin), *mendioka* (Chamorro)), or 'cassava' (e.g. *kasava* (Kilivila)).

2 This belongs to the Leguminosae family. It refers to large trees whose leaves are used for house building.

3 This form is combined with different descriptive terms to describe different species in Malay in a manner similar to that noted above in note 1 for 'arrowroot' (Merrill 1923-26).

EMP No known reflexes[1]

1 There is also a word *sagharo* in Waropen (EMP) meaning 'palmsoort vloerlat gemaakt van deze palm' (i.e. 'type of palm used for making floor laths') (Held 1942) which may be related to these other reflexes but which is excluded because the reflexes of the relevant proto-sounds are not available for this language.

OC				
(WOC)[1]	*saku*	big or ornamental spoon for stirring sago or taro puree	Jâbem	Streicher (1982)
	sag	pandanus used for sleeping mat, sleeping mat	Muyuw (Woodlark Is)	Lithgow & Lithgow (1974)
(CP)[2]	#			

1 Not included in this listing is the Tok Pisin word *saksak* 'sago palm, sago, sago swamp' (Mihalic 1971) and a number of forms for 'thatch' in non-Austronesian languages in the Huon Peninsula that look as if they may be borrowings of reflexes of **sa(ŋ)gu*. These are *saŋ* (Kâte, Kosorong, Kube), *sam* (Nabak, Sialum), and *ham* (Selepet) 'pandanus' and *soŋoro* (Kâte) 'thatch (made of split sago fronds)' (McElhanon, pers.comm.). Pandanus nuts are a major Selepet food and are traded by them from the lowlands into the neighbouring highlands. The origin of Tok Pisin *saksak* is unknown but the word was most probably borrowed from Ambonese or other Indonesian labourers brought to Papua New Guinea in the nineteenth century.

2 The following form in Fijian looks as if it could be a reflex of PMP **sa(ŋ)gu* but cannot be as the *g* in it derives from PAN **ŋ: soga 'Metroxylon vitiense* (whose leaves are used for thatch)'. This palm only

grows in one area of southern Viti Levu and its use for thatching is said to have been introduced by Solomon Islander labourers in the last century (Geraghty, pers.comm.).

(3) **qatep*

Area	Form	Meaning	Lg/Dialect	Source
FOR	No known reflexes			
WMP				
	**qatəp*	roof, thatch	Proto Philippine	Sneddon (1984:63)
	atĭp	thatch	Tagalog	English (1965)
	atip	roof	Tagalog	Tryon (ed. 1994:7.510)
	atep	thatch	Bontok[1]	Reid (1976)
	atep	roof	Manobo	Elkins (1968)
	atep	roof	Yami	Tryon (ed. 1994:07.510)
	atap	thatch	Malay	Wilkinson (1932)
	hatap	thatch	Bakumpai (=Ngaju Dayak)	Kawi (1985)
	atap	roof	Isneg	Tryon (ed. 1994:07.510)
	otóp	roof	Kalinga	Tryon (ed. 1994:07.510)
	taap[2]	roof, thatch	Kadazan (N.Borneo)	Antonissen (1958)
	àtàp	roof, thatch	Tidung Dayak	van Genderen Stort (1916)
	**atup*	roof, thatch	Proto Sangir	Sneddon (1984)
	**qatə'*	thatch	Proto Central Maluku	Collins (1983)

1 All 43 minor Philippine languages have reflexes of WMP **qatəp* (Reid 1971:124).

2 It is not clear if this is a true reflex or not because no information is available about the sound correspondences involved.

OC				
	**qatop*	thatch	Proto Oceanic	Grace (1969)
	**qato*	thatch	Proto Eastern Oceanic	Cashmore (1969)
(WOC)	*kooto*[1]	sago leaf thatch	Mbula	Tryon (ed. 1994:07.520)
	atob	thatch (with sago leaves)	Ubir	Money (1907)
	atob	thatch of sewn sago leaves	Arifama-Miniafia	Wakefield (pers.comm.)
	atoa	thatch	Dobu	Young (pers.comm.)
	atova	thatch	Kalauna	Young (pers.comm.)
	*a*tip, etep*	to thatch by doubling grass back	Tolai	Lanyon-Orgill (1960)
	eép	Haus decken (= thatch)	Tolai	Meyer (1927)

	ni-etep	thatch	Tolai	Tryon (ed. 1994:07.520)
(SES)				
	ato	sago palm	Tolo	Crowley (1986)
	ato[2]	*Metroxylon* sp.	Bugotu, Lengu, Nginia	Henderson & Hancock (1988)
	s-ao	sago palm, sago thatch, sago flour	Lau	Fox (1974)
	th-ao	sago palm	Toambaita	Keesing (pers.comm.)
	l-ao	sago palm, sago starch	Kwaio	Keesing (1975)
	amba s-ao	*Metroxylon* spp.	'Are'are	Hancock & Henderson (1988)
	r-āo	sago palm, thatch	'Are'are	Geerts (1970)
	s-ao	*Metroxylon* spp.	Kwara'ae	Henderson & Hancock (1988)
	s-ao	sago starch	Sa'a	Ivens (1929)
	ao	sago palm, thatch	Arosi	Fox (1978)
(CP)				
	ato	thatch	Tokelauan	Simona (1986)
	'ato	thatch, roof	Tongan	Churchward (1959) Tryon (ed. 1994:07.510)
	ato	to thatch	Samoan	Milner (1966)
	ato	thatch	Tuvaluan (Ellice Is)	Ranby (1980)

1 The neigbhouring non-Austronesian language Kovai has *at* for 'thatch' (Bugenhagen, pers.comm.) but this is clearly a borrowing from some Austronesian language.

2 There are a number of forms in other Solomon Islands languages for 'thatch, roof' which appear to be reflexes of this etymon but which are not of the expected form, e.g. *tago* (S.Ambrym), *togor* (N.Ambrym), *taxui* (S.E.Ambrym), *raho* (Arosi, Sa'a).

3. FORMAL ASPECTS OF THE COGNATE SETS

(1) As noted in the sets above none of these items has any known reflexes in Formosan languages. Consequently they cannot be reconstructed to the level of Proto Austronesian. Instead the highest level to which they can be attributed is Proto Malayo-Polynesian, as all have reflexes in more than one subgroup of Malayo-Polynesian languages.

(2) There is some unexplained variation in the quality of vowels in these sets.[11] However, given present resources this variation must remain unexplained for the time being except for that in the **rumbia* set.

Dempwolff reconstructed PMP **rumbia* for 'sago palm' on the basis of Toba Batak and Malay *rumbia*, Ngaju Dayak *hambie*, Malagasy *rufia* 'sago palm' and Samoan *pia*

11 There is a further problem which is not addressed in this paper and that is the **r* > **R* change implied in Blust's doublet. The problem is in fact larger than this as the reconstructability of PMP **r* has been questioned by many scholars. In addition, Wolff, in his paper in this volume, suggests that such irregularities in plant names reflexes are evidence of repeated borrowing.

'arrowroot'.[12] Since then Blust (1989a:Item 505) has reconstructed **Rambia* (with doublet[13] **rumbia*)'sago palm' for PMP based on Ngaju Dayak *hambie* and Motu *rabia* 'sago palm' as witnesses, and Ross (1988:159) **rabia* 'sago' for POC. These supercede earlier proposals by Chowning(1963) and Grace (1969) for Proto Melanesian and Proto Eastern-Oceanic respectively.[14]

Thus while there is considerable agreement between different investigators about the form and meaning of this item at PMP and POC levels there is some disagreement about the quality of the vowel in the first syllable at PMP level. Dempwolff reconstructs **u* and Blust both **a* and **u*. However, strictly speaking Dempwolff's reconstruction cannot be attributed to PMP as it is based solely on WMP witnesses and an erroneous PN witness (that is, a witness that is now regarded as reflecting a different etymon, PAN **biRa(q)* 'semen' (Blust 1970:Item 58)).[15] Blust's on the other hand is based on witnesses from geographically widely separated subgroups of PAN, one in WMP (in fact the same as quoted by Dempwolff) and one in Oceanic. Yet given that Blust reconstructs a doublet here the question arises as to the relationship between these proposals. Specifically:

(a) do the members of the proposed doublet represent variants of one form?
(b) if so, what are their histories?
(c) if not, how do we account for the doublet?

There are two pieces of evidence that have a bearing on these questions. One is the distribution of forms across languages and subgroups and the other phonological tendencies of WMP languages. Let us begin with the former.

It can be seen from the above cognate set that, except for Ngaju Dayak,[16] cognates reflecting a **u* vowel are distributed throughout WMP and CMP, those of an **a* vowel elsewhere, and in particular throughout POC. That is, the two sets are in complementary distribution. That in turn suggests that the two subsets are variants of one form and not contrasting, as is suggested by the doublet designation. It further suggests that one or the other vowel reflex is an innovation, that is, either PMP **u* > *a* or PMP **a* > *u* in the relevant languages. If the latter is the case at least two independent changes would have to be postulated to account for the observed distribution of *u*-vowels in WMP and CMP languages – one at each level of PWMP and PCMP. In that case, however, the Ngaju Dayak form poses a problem – it cannot be explained as a retention of the change **a* > *u* at PWMP level. If on the other hand PMP **u* > *a* such a change would have had to have occurred at some point before POC diversified into its daughter languages, either as an innovation within POC

12 Dempwolff was in error in connecting this with **rumbia* even though the semantics look good.

13 Blust (1970:112) defines 'doublet' in the following terms: "Where two or more variants...[are] found to be independently reconstructible, doublets...[are] posited for the protolanguage".

14 Chowning's (1963:4) reconstruction was **labia* 'sago palm (*Metroxylon rumphii*) and Grace's (1969) **rumpia* and **rampia* 'sago', although Grace was uncertain as to which was the 'correct' form of the two (as evidenced by his use of question marks in the listing of each). His reconstructions were in his words (p.42) "based on data in Capell (1943) but more or less different from the regular Proto Oceanic reflexes of the Proto Austronesian form cited there".

15 Further comparative work is needed on this item as two or more distinct cognate sets appear to have been confused under it hitherto.

16 There are two other possible exceptions not listed in the above set – *dɔmbia* 'sago palm' in Selepet (McElhanon, pers.comm.) and *dumia* 'swamp' in Kilivila (Tryon, ed. 1994:01.380). The former most probably derives from POC **rabia* – POC **a* > *o* in Sio, an Austronesian language of the area (Ross, pers.comm.). If so it is a borrowing from some Oceanic Austronesian language. The Kilivila form on

itself or as a borrowing that had been absorbed into POC before diversification.[17] In either case the Ngaju Dayak form has to be explained as a local innovation.

In terms of the greater simplicity of these two possibilities the **u > a* scenario is the more likely. It is even more likely when the following phonological evidence is taken into account:

(a) there is considerable recorded variation in the form of the vowel in the first syllable of *rumbia*-type words in WMP languages. Thus consider:

(i) both *u* and *a* variants are given for the same language/dialects in De Clercq's lists.

Area	Form	Meaning	Lg/Dialect	Source
WMP				
	hoembiasangi	*Metroxylon* sp.	Minangkabau	De Clercq (1927:Item 2676)
	hambije	*Metroxylon* sp.	(Ngaju) Dayak[1]	De Clercq (1927:Item 2676)
	loembija	*Metroxylon* sp.	(Tidung) Dayak[1]	De Clercq (1927:Item 2676)
	labia	*Metroxylon* sp.	Toradja	De Clercq (1927:Item 2676)
	poeöerombia	*Metroxylon* sp.	Toradja	De Clercq (1927:Item 2676)
	rembieu	*Metroxylon* sp.	Gajo	De Clercq (1927:Item 2676)
	roembieu	*Metroxylon* sp.	Gajo	De Clercq (1927:Item 2676)

[1] De Clercq does not distinguish between these but it is clear from what is now known about the languages that the first refers to Ngaju Dyak and the second to Tidung Dayak.

(ii) intermediate forms written with *i* and *e* occur in the same or related languages, for example, Malay *rumbija*, *rembi*, *rembiaw*, *rembië*, *rəmbiya*. Thus Wolff (1974:83), referring to **rumbiya* 'sago palm', when arguing against PAN **rumbiya* as evidence for the retention of PAN **r*, notes that although the plant is well known in certain areas:

> ...in much of Indonesia and the Philippines, it is only found sporadically, and forms referring to this plant show numerous doublets and analogical reformations. (In Malay it is known as *rəmbiya*, but also alternatively as *gombiya* and *rumbiya*.)

(iii) *i* and *u* are given as reflexes of PAN **u* by at least one scholar working on reconstructing the historical phonology of a subgroup of Indonesian languages. Thus Collins (1983:111) gives *ripia* in Sepa and *lupia* in Tamilou for 'sago' as reflexes of PAN **rəmbia* 'sago'.[18]

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the other hand is not the expected reflex of **rumbia* – ***yubia* is – and in fact *yabia* occurs. Consequently *dumia* cannot be a true witness, as the semantics might also suggest.

17 Unfortunately it is not possible to decide in any non-arbitrary way between these two possibilities.

18 Collins's **r* is apparently meant to be **R* because he is supposedly illustrating "the treatment of **R* in Sepa-Teluti" (p.111). Moreover, Sneddon (1984:83) reconstructs **Rumbia* for Proto-Sangric with an **R*.

(b) Ngaju Dayak in particular (as do many other WMP languages including Malay) tends to reflect *u* in the antepenultimate syllable of PMP protoforms as *a*.[19] Consider, for example, the following sample taken from Dempwolff (1938) besides the **rumbia* example already given:

**bubuŋ* 'roof ridge'	> NGD *băbuŋ/an* 'roof ridge'
**kuliliŋ* 'round and round'	> NGD *kăliliŋ* 'round and round'
**t'ul/ambi* 'annexe or extension on house'	> NGD *sărambi* 'annexe or extension on house'

Thus distributional and phonological evidence points to an hypothesis that the original form of PMP **r(u,a)mbia* most probably was **rumbia* which became *hambia* in Ngaju Dayak for internal phonological reasons and **rabia* in POC (either through innovation in POC itself or by borrowing from some other language in which the same change had occurred) and was spread in that form as POC diversified in the Pacific.

4. SEMANTIC ASPECTS OF THE COGNATE SETS

The following meanings are represented in the cognate sets given:

(1) sago palm (*Metroxylon* sp., *Arenga* sp.)	(hereafter symbolised SP)
(2) sago starch	(hereafter symbolised SS)
(3) thatch	(hereafter symbolised TH)
(4) roof	(hereafter symbolised RO)

All known candidates for the above meanings are also given in the cognate sets. By arranging the evidence in an 'inclusion diagram' of the kind used by Dyen and Aberle (1974) we arrive at the display shown in the Table[20] in which 1 = reflex of **rumbia*, 2 = reflex of **sa(ŋ)gu* and 3 = reflex of **qatep*.

TABLE: INCLUSION DIAGRAM

Subgroup	Language	SP	SS	TH	RO
WMP					
	BIS	1,2			
	BIS(C)	1			
	BIK				
	ILK				
	BON		3		
	KGA			3	

19 In fact it tends to neutralise all vowels in this position (Adelaar, pers.comm.).

20 In drawing up this table I have adopted the following conventions:
(a) All borrowings were omitted.
(b) In some cases it is not clear if SS or SP is meant where the meaning is given simply as 'sago'. In these cases they were counted as SS. In addition verbs were counted as nouns corresponding to the kind of activity being referred to, for example:

sakul	make sago (Manobo)	> SS
atip	thatch by doubling grass back (Tolai)	> TH
manaku	cook sago till hard (Kadazan)	> SS
rumbia	scoop sago out of its trunk (Malay)	> SS

(c) Meanings with only one or two members in one subgroup were excluded as not being members of any candidate and therefore of no significance at this level (e.g. leaves, mat, spoon, juice, make torch, corn/maize, white of egg).

	ISN			3	
	MBO	2	2	3	
	PAN				
	TAG		2	3	3
	BAG	1			
	SUL	1			
	CEB	1	2		
	YAM			3	
	JAV		2		
	MAL	1	1,2	3	
	MAL(A)	2			
	KAD	1	2	3	3
	TID		1	3	3
	IND	1,2	2		
	TBB	1	2		
	MIN				
	NGD		2		
	BAK	1	3		
	HOV				
	GOR	1			
	SAN	1	2		
	TAE				
CMP					
	RTI				
	BUR	4			
	TET	1			
SHWNG					
	WAR				
OC					
	ADM		1		
	MBU		3		
	JAB	1	1	1	
	IWA		1		
	DBU	1	1	3	
	KAL	1	3		
	BMA	1			
	IAM	1	1	1	
	MIS	1	1		
	IDU		1		
	MUY	1	1		
	UBI		1	3	
	ARI	1	1	3	
	KLA	1	1		
	MTU		1		
	TAW				
	SUD		1		

(SES)				
	TOA	3)		
	TOL	1,3		
	ARE	3	3	
	BGO	3		
	LAU	3	3	3
	KWO	3	3	
	KWE	3		
	SAA		3	
	SIK			
	ARO	3	4	3
	TLO	3		
(CP)				
	FIJ(W)	2	1	2
	ROT		3	
	TOK		3	
	TUV		3	
	SAM		3	
	TON		3	3
	TAH			3

An analysis of this diagram shows that none of these candidates can be reconstructed for PAN; they can only be reconstructed at the level of PMP and on that level the following observations about candidature and inclusion can be made:

(1) For SP: the candidates are 1 (WMP, CMP, OC) and 2 (WMP, OC). Both of these are unincluded. The inference is that both meant SP.

(2) For SS: the candidates are 1 (WMP, CMP, OC) and 2 (WMP, OC). Both of these are unincluded. The inference is that both meant SS.

(3) For TH: the only candidate is 3 (WMP, CMP, OC) which is unincluded. This implies that 3 meant TH.

(4) For RO: the only candidate is 3 (WMP, OC) which is included in 3 of TH.

The method of lexical reconstruction thus gives the following PMP etyma:

1 **rumbia*	sago palm, sago starch
2 **sa(ŋ)gu*	sago palm, sago starch
3 **qatep*	thatch

However, given that **rumbia* and **sa(ŋ)gu* are both inferred to have meant 'sago palm' and 'sago starch' some further discussion of these semantic reconstructions is required. Although it is not impossible for two lexical items to have exactly (or nearly so) the same range of meaning in a protolanguage, it is highly unlikely, just as it is in contemporary languages. Where it does happen in contemporary languages the range of meanings covered by the items in question is not usually exactly the same. Consider, for example, such pairs as *big : large*, *speak : talk*, *street : road*. Consequently the fact that **rumbia* and **sa(ŋ)gu* are inferred by the method of lexical reconstruction used above to have had the same meaning is suspicious. This suspicion is increased if we note that reflexes of these items are in contrast semantically in many WMP languages (see Table 1), or, where this is not so reflexes of

**sa(ŋ)gu* have often come to refer to the starch of other plants while those of **rumbia* have not, except in two isolated cases.

An hypothesis which proposes that **rumbia* meant 'sago palm' in the protolanguage and **sa(ŋ)gu* 'sago starch' would not only account for these facts economically but would also fit well with another well-known observation, notably that POC languages in particular have collapsed many existing contrasts in WMP languages thus providing innovations which are used to define POC as a high-order subgroup of PAN.

If such an hypothesis is accepted the other semantic reflexes noted can be explained as common types of shifts triggered by user-perceived similarities in the form or function of the relevant items. Thus, for example, if **rumbia* meant 'sago palm' it most probably referred to *Metroxylon sagu* (or *rumphii*) in particular as this was the most widespread sago-producing sago palm type.[21] However, where this palm does not occur or where other palms have come to assume more importance for some reason, reflexes of this are applied to other palms such as *Arenga* spp. Elsewhere reflexes have come to designate other plants such as *Colocasia* spp., *Tacca pinnatifida* and *Manihot esculanta* from which a starchy food can be made, even if this is only seen as fit for pigs in some instances as is reported to be the case in Tae'. By extension the words for these plants come to be applied to the starch produced by them in accord with the common practice of present-day Austronesian populations who name the edible products of plants after the plant itself, as, for example, *niu* 'coconut' which refers to the nut as well as to the palm on which it grows. In some cases reflexes of this protoform have come to be applied to 'thatch' where the fronds of the palm have been used as roofing material. In all cases, however, the different meanings can be most simply explained as derived from an original meaning of 'sago palm'.

Finally, there is the question of the gloss for **qatep*. As presently reconstructed it is very general, giving no indication of type of material used. In so far as the present linguistic evidence is illuminating at all it suggests that 'sago leaves' is the most likely material. Thus in the few cases where the glosses given for reflexes of this item are specific 'sago' is mentioned. Consequently the reconstructed gloss for **qatep* should most probably be 'sago thatch'.

I thus propose the following as the proto-meanings of the cognate sets discussed:

1 **rumbia*	sago palm
2 **sa(ŋ)gu*	sago starch
3 **qatep*	sago thatch

It is to be noted that the proto-meanings arrived at using the above method are very similar to those suggested by Dempwolff despite the more limited materials available to him and his appeal to some erroneous witnesses.

5. CONCLUSION

In this paper I have examined three cognate sets to do with sago and other foodstuffs and have reached the following conclusions:

(1) The highest level to which the reconstructions can be attributed on present evidence is PMP.

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[21] Thus it is reported by Ruddle et al. (1973: 42) that in Melanesia at least 300,000 people rely on it as their main energy food and some one million consume it regularly in their diet.

(2) Variation in the form and distribution of *u* versus *a* vowels in the first syllable of cognates of the **rumbia* set can most economically be explained by the reconstruction of a *u* vowel in this position in the protoform. That is, POC **rabia* is seen as a distributional variant resulting from an innovation at POC level or from borrowing at that level.

(3) The proto-meanings of the etyma discussed are 'sago palm' for **rumbia*, 'sago starch' for **sa(ŋ)gu* and 'sago thatch' for **qatep*.

These results in turn have culture-historical implications:

(1) It is clear from the existence and distribution of cognates for **rumbia* and **sa(ŋ)gu* that (a) PMP speakers were sago-eaters, and that (b) sago must have been very important to the expansion of early Austronesian speakers, in fact, probably much more important than has hitherto been recognised.[22]

Ruddle et al. (1978:83) warn that "one cannot assume that either an economy which appears primitive or a food plant which is as important as sago is necessarily ancient". However, the linguistic evidence makes it clear that sago culture must be at least as old as PMP. This conclusion is supported also by the range of attitudes to sago as a foodstuff. In many areas sago is still a staple, in many others it is seen as an emergency food only to be called upon when other foods are not available or for special ceremonial purposes (Ruddle et al. 1978:42-69).[23] Although it is not possible at this stage to argue the point it seems highly likely that the devaluation of sago as a foodstuff where it has occurred or its relegation to special ceremonial status in others is most probably related to the spread of other starch staples such as rice, sweet potato and arrowroot across the Austronesian world. This would imply, however, that these changes are not very old in the Pacific as both the latter two foodstuffs are said to be post-Magellan introductions.

(2) A surprising feature of the cognate sets discussed in this paper is that none have known cognates in Formosan languages even though one of the sago-producing varieties, a species of *Arenga*, is (or was) reportedly found on Taiwan – see map. However, as Ruddle et al. (p.9) point out "the [reported or potential] presence of a palm in a particular area does not necessarily imply the presence of palm starch extraction. More difficult is the problem of depicting the distribution of other reportedly exploited genera...[such as] *Phoenix*".[24]

(3) No widespread cognate sets were found for items that can be clearly associated with sago-using cultures (although it has to be admitted searching for them was not a primary aim of this study). That is, no sets of terms were found that can be reconstructed at a high level for such things as instruments and methods used in producing sago starch (e.g. words for to

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22 Bellwood (1990:3) comes close to giving due recognition to the importance of sago in the expansion of Austronesian languages when he notes that "predelictions for special environments such as swamplands for rice and taro or good fishing lagoons" was one reason (amongst others) for the success of Austronesian colonisations. One explanation for the lack of recognition of the importance of sago to this process is probably that the technology associated with sago production is non-distinctive and leaves no archaeological record.

23 I also have many specific cases noted for Austronesian communities in Papua New Guinea.

24 Another reason may well be, as Peter Matthews (Department of Prehistory, The Research School of Pacific and Asian Studies, The Australian National University) points out (pers.comm.), that there may be other starchy plants native to Taiwan to which the sought-for reflexes refer. Thus species of *Alocasia* and *Cycas* are widely distributed throughout Asia and the Pacific and both are starch producing. *Cycas* spp. have starch stems that are processed in a similar way to sago and techniques used for extracting starch from *Alocasia* spp. may be essentially the same (Johns & Kubo 1988). The question obviously needs further investigation.

fell a sago tree, axe/adze/pounder, trough, settling basket).[25] This is particularly striking given that "the techniques and implements used to extract sago are remarkably similar throughout the tropics, despite variations in detail" (Ruddle et al. 1978:11). What one finds instead is a relatively large collection of small cognate sets that are very local in distribution. The reason for this appears to be that the methods of felling sago palms and the instruments used in extracting the sago are not specialised and therefore do not persist through time. Thus an axe or adze is an axe or adze and may be used for different purposes. There is also the problem of course that other terms which may have been associated with the three etyma discussed in this paper in the cultural context (e.g. cultivated (= garden) versus uncultivated land, cut-peel-scrape-skin, ripe-mature-overripe, dig-till, sucker-young shoot-sprout, flower-blossom) are of such a general character that it is not possible to associate them solely with the items studied here. Similarly gardening and fencing are evidently not associated with sago because sago is not enclosed or tended like other crops even if it is often planted. The reason for this is presumably that the palms are native to the area and are self-protecting with a hard outer rind and, for some species, needle sharp spines.

(4) It has already been pointed out that in many areas sago is an important emergency food that communities fall back on when their normal foodstuffs are in short supply or unavailable. In that case the starch may be produced locally, or if unavailable there obtained by trading.

One of the most famous, if not the most famous, trading networks based on sago was that of the *hiri* in the Port Moresby area of Papua New Guinea. This was an annual trading cycle in which the Motu, the traditional Austronesian inhabitants of that area, sailed large multihulled canoes to the Gulf of Papua to exchange locally-made clay pots and other cultural items for sago, canoe logs and other minor Gulf products (Dutton 1982). For a long time it has been accepted, on the word of the Motu themselves, that this trade was basically motivated by periodic shortages of food in the Port Moresby area (Oram 1982). Some years ago, however, this view was challenged by Allen (1977a, 1977b) who suggested that this was too simplistic a view. The Motu, Allen (1977b:43) claims, were successful entrepreneurs who (amongst other things) "were able to achieve highly complex and successful levels of resource utilisation by a variety of adaptive technologies and social manoeuvres" which included "formalised exchange systems".

In so far as the linguistic evidence can contribute to this debate the following two points are relevant:

(a) The Motu, whenever and wherever they came from, retained the POC-derived word *rabia* (< PMP **rumbia*) for sago. They would not have done so if sago had not remained part of their diet. That it did so probably stems from the fact that in the first instance, and contrary to what one might suspect if one were looking at the Port Moresby landscape today, sago once grew, albeit in very limited supply, in parts of the Port Moresby area.[26]

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25 Chowning (1991:51), however, records Kove *walu*, Lakalai *ualu*, and Molima *e/wanu* 'sago beater' suggesting PWO **(e)walu*. She also suggests that POC **(k,q)ota* may have referred to sago pith on the basis of Kove *kota* 'sago pith left after starch is extracted', Fijian *kota* 'coconut meat grated and wrung out', and PPN **qota* 'dregs, rubbish'.

26 Thus, for example, Lindt (1887:50) refers to "a few natives engaged in extracting...sago from the trunk of the Rabia palm" while travelling up Akibaka Creek off Aroa River to the west of Port Moresby; Chalmers and Wyatt Gill (1885:266) refer to a "fine sago palm" between Port Moresby and the Laloki River; Oram (pers.comm.) has recorded that sago palms once grew at Ranubada outside the entrance to Taurama Barracks and in Eastern Motu territory in the swamps beside the Rigo road; and I myself saw

(b) According to replies to a survey question about attitudes of present-day Austronesian populations in Papua to sago as a foodstuff, circulated by me, the common (non-Motu) response was that it was regarded as a famine or supplementary food. This fits very well with the Motu explanation for the *raison d'être* of the *hiri*.

Both points taken together would seem to suggest, therefore, and irrespective of whatever other values the *hiri* trade may have developed subsequently or was developing when Europeans arrived as Allen claims, that the *hiri* was first and foremost economically driven – the Motu never lost contact with sago as a foodstuff and found ways to tap the vast resources of it in the Gulf. In doing so they showed remarkable ingenuity, energy and political skill which enabled them to survive in a relatively poorly endowed physical environment.

APPENDIX 1: REFLEXES OF RELEVANT PMP CONSONANTS IN A SELECTION OF LANGUAGES REFERRED TO IN THIS PAPER

PMP	*p-	*-t-	*b-	*-(m)b-	*-(ŋ)g-	*r-	*R-	*-R-	*s-	*-q
POC(P)	*p-	*-t-	*p-	*-mp-	*-ŋk-	*d-	*R-	*-R-	*s-	ø
POC(R)	*p-	*-t-	*p-	*b	*-g-	*r-	*R-	*-R-	*s	ø
WMP languages										
PPH	*p-	*-t-	*b-	*--(m)b-	*-(ŋ)g-	*r-	*R-	*-R-	*s-	*-q
TAG	p-	-t-	b-	-(m)b-	-(ŋ)g-	l-	g-	-g-	s-	-q
HOV	f,p-	-t,ts/_i	v,b-	-mb, v-	-k,h-	r-	z,ø-	-z,ø--	ø,s--	ø
MAL	p-	-t-	b-	-(m)b-	-(ŋ)g-	r-	r-	-r-	s-	ø
NGD	p-	-t-	b-	-(m)b-	-(ŋ)g-	r-	-h-	-h-	s-	ø
TBB	p-	-t-	b-	-(m)b-	-(ŋ)g-	r-	r-	-r-	s	ø
CMP languages										
BUR	?	?	?	?	?	?	?	?	?	?
SHWNG languages										
WAR	?	?	?	?	?	?	?	?	?	?
OC languages										
POC(P)	*p-	*-t-	*p-	*-mp-	*-ŋk-	*d-	*R-	*-R-	*s-	ø
POC(R)	*p-	*-t-	*p-	*b	*-g-	*r-	*R-	*-R-	*s-	ø
ADM	*p-	*-t-	*p-	*b-	*-g-	*r-	ø	*-R-	$*s_{F}$-	ø
LON	p-	-t-	p-	-p-	ø	ø	ø,r [1]	-y--	s--	ø
(SES)										
KWO	f,mb-	-ø-	f,mb-	-mb-	-g-	r-	r,l-	-r,l-[2]	t,s/-i,e	ø
ARO	h,b-	-ø-	h,b-	-b-	?	r-	r-	-r-	t,s/-i,e	ø
PPT	*p, *v-[3]	*-t-	*p,v-	*-b-	*-g-	*r-	*r-	*-r-	$*s_{F}, s_{L}$-	ø
MUY	p,v-	-t-	p,.v-	-b-	-g-	y-	y-	-y-	l,s-	ø
PCP	*p,v-	*-t-	*p,v-	*-b-	*-g-	*l-	*l-	*-l-	*r-	ø,*Y/*-a
MTU	p,h-	-t;s/-i,e	p,h-	-b-	-g-	r-	r-	-r-	d-	l-
TOL	p,v-	-t-	p,v-	-b-	-g-	r-	r-	-r-	ø	ø

palms growing at different points along the same road and in the Rigo area in the late 1950s. I am indebted to Nigel Oram for providing the foregoing and other references to sago in the Central Province.

FIJ	*v-*	*-t-*	*v-*	*-b-*	*-q-*	*r-*	*ø*	*ø*	*s-*	*ø*
PPN	**f-*	**-t-*	**f*	**-p-*	**-k-*	**l-*	*ø*	*ø*	**s-*	*ø*
SAM	*f-*	*-t-*	*f-*	*-p-*	*-k-*	*l-*	*ø*	*ø*	*s-*	*ø*

1 Only in one clear case (Blust 1978b).
2 Before non-high vowels.
3 Ross (1988) sets up fortis (F) and lenis (L) variants of POC **p* and POC **s* to account for certain sets of correspondences.

APPENDIX 2: REFLEXES OF RELEVANT PMP VOWELS IN A SELECTION OF LANGUAGES REFERRED TO IN THIS PAPER

PMP	**a*	**i*	**e*	**u*
PPH	**a*	**i*	**e*	**u*
TAG	*a*	*i*	*i*	*u*
MAL	*a*	*i,e*	*ə,a/-(C)#*	*u,o*
TBB	*a*	*i,e*	*o*	*u,o*
NGD	*a,-ä*	*i*	*e*	*u,o*
HOV	*a,-y*	*i*	*e,i/(C)_#*	*u*
POC(P)	**a*	**i*	**o*	**u*
POC(R)[1]	**a*	**i*	**o*	**u*

1 In Oceanic languages these vowels are reflected regularly with the same values except that schwa is reflected as *o* and in some languages the quality of the reflex vowel may be affected by following high vowels (e.g. in Sa'a POC **a > e* and in Rotuma POC **a(C)e > æ*, POC **a(C)u > o(C)*, **A(C)i > ä*, **e(C)u > o*, **u(C)i > ü*).

APPENDIX 3: REFLEXES OF **mēnak* 'FAT'

Area	Form	Meaning	Lg/Dialect	Source
FOR	No known reflexes			
WMP				
	mantika	lard	Tagalog	English (1965)
	minyak	fat	Malay	Wilkinson (1932)
	menaka[1]	fat, grease	Malay	Tryon (ed. 1994:05.791)
	miak	oil, fat	Toba Batak	Warneck (1977)
	miñak	fat	Bahasa Indonesia	Matsay (pers.comm.)
CMP				
	mina-k	fat, grease	Roti	Tryon (ed. 1994:05.791)
	mina-n	fat	Buru	Tryon (ed. 1994:05.791)
OC (WOC)	*meene*	sago palm, starch	Mbula	Bugenhagen (pers.comm.)
	momona	semen	Kilivila	Senft (1986)
	momola	fat	Kilivila	Senft (1986)
	monamona	fat	Tawala	Ezard (pers.comm.)

(CEOC)				
	monoi	fett, feist sein	Tolai	Meyer (1927)
	mangoni, *mwomwona*	fat	Sa'a	Ivens (1929)
	momona	fat	'Are'are	Geerts (1970)
	monana	liquid fat	Tolo	Crowley (1986)
(CP)				
	momona	fat	Tuvaluan (Ellice Is)	Ranby (1980)
	momona	fat (of shellfish)	Tongan	Churchward (1959)

[1] Noted in footnote as being derived from PMP **mi(nñ)ak*.

WHO'S WHO IN EGO'S GENERATION: PROBING THE SEMANTICS OF MALAYO-POLYNESIAN KINSHIP CLASSIFICATION

JAMES J. FOX

1. INTRODUCTION[1]

My concern in this paper is with the interpretation of a set of kinship terms attributed to Proto Malayo-Polynesian. Since the languages that comprise the subgroup of Malayo-Polynesian, from which evidence of the protolanguage is derived, are overwhelmingly characterised by a generational structure, my specific focus for the purposes of this paper will be confined to the kinship terms of Ego's generation. My concern does not focus on any single lexeme but rather on the set of lexemes whose semantic interrelations are presumed to constitute a coherent group defining some particular form of social organisation. It is therefore not the lexemes themselves but their possible semantic interrelation and the kind of organisation implied by these lexemes that are at issue.

The question that I want to raise is one of indeterminacy or, at least, of methodological uncertainty: how do we establish the semantics of Proto Malayo-Polynesian (PMP) kinship given the remarkable diversity of the terminological systems that have been developed by different Malayo-Polynesian-speaking populations on the basis of relatively similar sets of terms?

This question can also be viewed from another perspective. Evidence for the inclusion of any particular lexeme in a proposed PMP kinship terminology is derived singly, yet these etyma must make sense collectively to constitute a system of classification. What, therefore, if there were more than one plausible semantic interpretation of exactly the same set of etyma, with each interpretation reflecting a recognisable variant of a Malayo-Polynesian kin classification system? The issue would then become one of determining probable solutions among possible systems.

It may well be possible to arrive at a protolanguage construction for the Malayo-Polynesian kinship terminology, but to do so one must take into account the complexity of the task at hand. For this, there can be no short cuts or simple solutions.

In this paper, I want to look at eight lexemes reconstructed for Ego's generation in the Proto Malayo-Polynesian kinship terminology. To provide some indication of the variety of possibilities for the semantic interpretation of these lexemes, I want to examine the kin terms for Ego's generation in a number of different contemporary Malayo-Polynesian societies, all

[1] I would like to thank Charles Grimes, Andrew Pawley, Ananda Rajah and Malcolm Ross for their useful comments on drafts of this paper.

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 127-139.
Pacific Linguistics, C-127, 1994.

of which share a significant number of reflexes of the PMP set. My examination of these systems is intended to illustrate some of the forms of variation that occur among contemporary Malayo-Polynesian societies. Although a few such systems cannot give an adequate idea of the range of this variation, these examples do provide enough possibilities to allow me to venture two alternative and equally coherent semantic reconstructions for the eight PMP lexemes of Ego's generation. In my conclusion, I point to the features that may most readily transform one alternative to the other. This, in turn, raises the question of the development of the most general features of Malayo-Polynesian kinship classification.

2. KINSHIP TERMINOLOGIES AS OBJECTS OF STUDY

From an analytic point of view, it is often difficult to determine what should or should not be considered a 'kinship' term. Kinship is a rich field of social discourse and the terms used in this discourse invariably include alternative forms, terms of politeness, vocatives, as well as 'metaphoric' terms that are not confined exclusively to the field of kinship discourse. Often consideration of such 'metaphoric' terms provide revealing cultural insights.[2]

From the outset, the process of analysis 'frames' its object. By our frame of analysis, we elicit, select, and thereby delimit a field of cultural discourse; and, then, to this field of discourse we direct particular interrogations. The questions we pose are those of coherence, intelligibility, and, in the case of relationship terminologies, the question of possible social function.

Lewis Henry Morgan, who initiated the formal study of relationship terminologies in his massive work, 'Systems of consanguinity and affinity of the human family' (1870), also established the chief conventions and underlying assumptions that continue to shape current analysis. By enshrining as critical a concept of 'descent' and by analytically distinguishing 'consanguinity' from 'affinity', Morgan claimed to have fashioned a scientific framework for the study of kinship. This framework, however, was based on well-established British and European legal categories.[3] As a construct reflecting Western assumptions, this framework has proved particularly intractable for the study of Malayo-Polynesian systems of kinship.

Given his analytical assumptions, Morgan, on the basis of his study of Hawaiian kinship – particularly the terms of Ego's generation – could only arrive at the scandalous conclusion that these terms reflected a prior system of incestuous marriage. For this curious form of supposed social organisation, Morgan coined the term '*punaluan*', and argued that this represented one of the earliest forms of human society.

Although simplistic in its initial formulation, Morgan's research has bequeathed a legacy that continues to set the framework for the study of Malayo-Polynesian kinship and social organisation. The major criterion for the typology of Malayo-Polynesian societies remains

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2 An example of a cultural analysis that derives from asking the question 'what is a kinship term?' can be found in 'Sister's child as plant: metaphors in an idiom of consanguinity' (Fox 1971). The fact that the Rotinese use a noun form (*selek*) of the verb 'to plant' as a term for the 'sister's child' is indicative of a conceptual system that draws connections between humans and plants.

3 Morgan, who was himself a practising lawyer, was deeply influenced by the work of the great English jurist, William Blackstone, and in particular by two of Blackstone's major treatises, *An essay on collateral consanguinity* (1750) and *A treatise on the law of descents in fee-simple* (1759). Morgan, for example, adapted Blackstone's diagram of collateral consanguinity to represent various 'systems' of consanguinity.

that of 'descent'. Thus there is a concern to distinguish, usually on the basis of kin terminology, those societies with undifferentiated descent ('cognatic descent') from those with a variety of forms of differentiated descent ('patrilineal', 'matrilineal', 'bilineal', 'double unilineal', 'ambilineal', etc.).

Cross-cutting this supposed divide between 'differentiated' and 'undifferentiated' descent, there exists a further concern to relate to one another those parts of the kinship terminology that have been analytically distinguished as either 'consanguine' or 'affine'. Societies with prescribed or directed forms of marriage are seen to be of particular interest in regard to issues of consanguinity and affinity.

I have for some time argued against the pervasive legacy of Morgan's paradigm and its use, in various contexts, to specify early forms of Malayo-Polynesian or Austronesian social organisation (Fox 1980a, 1988a, 1988b). As an alternative to 'descent groups', I have proposed the concept of 'origin structures/groups' which are as commonly found in societies without descent as they are in societies with descent; and I have argued for the importance of 'precedence' (rather than 'hierarchy') as an organising feature in relations among groups and individuals (Fox, forthcoming). I also pointed to the 'house' as a mediating social and ritual structure in Malayo-Polynesian societies (Fox 1980b, forthcoming). As the evidence accumulates on the variety and diversity of Malayo-Polynesian forms of social organisation, it is essential to proceed cautiously in analysing this marvellous complexity. The purpose of this paper is thus to raise a further caution about what we think we may know.

3. KINSHIP VARIATION: COMPLETENESS AND DETERMINACY

In the Austronesian-speaking world, no two kinship terminologies are the same. Variation is considerable. This variation has two dimensions. Terminologies may vary in the number of terms that are utilised. Thus some Austronesian societies define a relational universe with more or less ten basic terms while other societies require over forty terms to create their social world. In addition, many terminologies contain alternative forms for the same referent. These alternative forms may, for example, be used to imply intimacy or deference with a particular relationship.

The other dimension of variation in kinship terminologies is in the specifications (or referents) of the terms used by any particular society. Thus with roughly the same number of terms (or even with the same number of related terms), societies can fashion what may appear to be radically different forms of social organisation. Moreover, in many Malayo-Polynesian societies the specification of a kinship term, especially in Ego's generation, depends on the gender of the speaker. Hence men and women may fashion distinctive structures of relationships by using the same terms to refer to different relatives. The specification of certain terms must therefore include the gender of the speaker.

One example is sufficient to illustrate this situation. Various contemporary Malayo-Polynesian-speaking populations have a term *ipar*, or a close cognate of *ipar*, that refers to some category of affine. The referents for this term, however, vary significantly. Thus, for example:

Ipar as an affinal category[4]

1.	Iban	*ipar*	: A, same generation, both sexes[5]
2.	Sa'dan Toraja	*ipa'*	: A, same generation, both sexes
3.	Manggarai	*ipar*	: HZ, BW, WBW, HZH
4.	Sikka	*ipar*	: MBD (m.s.), FZS (w.s.)
5.	Tagalog	*ipag*	: WZ, BW (if older)
6.	Isneg	*ipag*	: WZ, BW (m.s.); HB, ZH (w.s.)
7.	Tagbanwa	*ipag*	: WZ, BW (m.s.); HB, ZH, HZ, BW (w.s.)

This kind of situation presents formidable obstacles to any analyst who wishes to reconstruct the protolexemes of a kinship system and, on the basis of these reconstructed lexemes, attempts to deduce forms of social organisation. Variation in the number of terms that can cohere to constitute a relationship system raises the question of 'completeness'; while variation in specifications of kin terms, even among closely related languages, raises a question of 'determinacy of reference'.

These two problems are intimately connected since one would not wish to venture to construct an early form of kinship terminology without some reasonable assurance that the protolexemes one used were indeed complete. In specific terms, there are two questions: (1) When can one be confident of having constructed all the terms of a terminology? and (2) What can one infer from these terms, if this confidence can be established?

4. CANDIDATE TERMS FOR EGO'S GENERATION

Based on present knowledge, there would appear to be eight good candidate terms for Proto Malayo-Polynesian kinship in Ego's generation. Whether this list of eight terms constitutes a 'complete' set remains to be established.[6] For the purposes of this paper, the list is sufficient to illustrate the problem of indeterminacy. I list these candidate terms here with the simplest possible general glosses:

Proto Malayo-Polynesian kinship: Ego's generation

1.	**kaka/aka*	elder
2.	**huaji*	younger
3.	**laki*	male
4.	**binay*	female
5.	**ma-Ruqanay*	male relative
6.	**betaw*	female relative
7.	**hipaR*	affine
8.	**qasawa*	spouse

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4 Kinship data on the Iban is from J.D. Freeman (1960); on the Sa'dan Toraja, H. Nooy-Palm (1979); on Sikka, P. Arndt (1933); on the Manggarai, Gordon (1980); and on the Isneg and Tagbanwa, R.E. Elkins and G.R. Hendrickson (1984).

5 The simple conventions used, in this paper, for these specifications are as follows: P = parent, F = father, M = mother, B = brother, Z = sister, S = son, D = daughter, Sb = Sibling, Sp = spouse, W = wife, H = husband, A = affine, unless further specification is required. Using these basic identifications, a variety of easily recognisable combinations can be constructed: MB = mother's brother, MBD = mother's brother's daughter, WB = wife's brother, ZH = sister's husband, etc. This paper also uses the following additional conventions: e = elder, y = younger; m.s. = man speaking, w.s. = woman speaking.

6 Other possible candidate terms are **baliw*, **bunting*, **urang* and **nara*.

Some of these eight can be considered as related pairs, which is in itself perhaps the most significant feature of this particular set. The first two of these terms (**kaka/*huaji*) encode a notion of relative age (the elder/younger distinction); the second two (**laki/*binay*) encode a notion of gender (the male/female distinction); the third two (**ma-Ruqanay/*betaw*) also appear to encode some gender distinction between related individuals; while the last two terms (**hipaR/*qasawa*), which do not form a pair, encode notions of affinity and marriage. Unlike **kaka/*huaji* which form a reciprocal pair, reflexes of **hipaR* in most Austronesian societies are self-reciprocal. Similarly reflexes of **qasawa* are often but not always self-reciprocal.[7]

Assuming for the sake of discussion that this represents a reasonable, but not necessarily complete, repertoire of terms for Ego's generation, we may speculate, on the basis of what we know of present Malayo-Polynesian societies, on the possible forms of social organisation this particular repertoire of terms might imply.

To illustrate some of these possibilities, it is instructive to consider the configuration of terms in Ego's generation in a number of different contemporary Malayo-Polynesian societies that retain reflexes of these constructed PMP lexemes. Since there are eight lexemes in the constructed set, my choice of contemporary societies will be confined to societies that retain 50 per cent or more of these lexemes. To illustrate a range of variation, I have chosen societies with languages which, following Blust's classification, belong to the Western (WMP), Central (CMP) and Oceanic (OC) subgroups of Malayo-Polynesian.

5. CONTEMPORARY MALAYO-POLYNESIAN VARIATION

The societies I have chosen to illustrate variations in terminologies are: (1) the Iban of Sarawak; (2) the Sa'dan Toraja of south Sulawesi; (3) the Ngada of central Flores; (4) the Rotinese of the Timor area; (5) the Sikka and Ata Tanai Ai of central east Flores and (5) the Fijians of the Lau Islands. In addition to their linguistic diversity, these societies can be taken to represent – according to present social typologies – significantly different forms of Malayo-Polynesian social organisation. After presenting the terms used in Ego's generation for each of these societies, I provide a brief sketch of the social organisation of that society to give some idea of what makes it distinct from the other societies of this particular group.

It is useful to begin with a familiar well-documented society: in this case, the Iban of Sarawak who utilise eight terms in Ego's generation of which five (*aka, adi, laki, bini, ipar*) are reflexes from the PMP set. I list these terms with minimal indicative specifications:

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7 These terms are candidates for Proto Malayo-Polynesian (PMP), not for Proto Austronesian (PAN) kinship. Much more systematic work must be done to make clear possible terminological developments from PAN to PMP. Interestingly the kinship terminologies of different Formosan societies make distinctions and equations that resemble those in other parts of the Austronesian world. Yet the use of lexical resources in these languages, in significant instances, differs systematically from the use of similar resources in Malayo-Polynesian languages: thus, to cite just a few examples, *laqe* (Atayal, Sedeq), *lelake* (Rukai) and *velake* (Torulukane) all refer to 'child' without gender specification; *iva* [possibly from **hipaR*] (Puyuma) refers to eSb, eSbSp, SpeSb; while *sava* [possibly from **qasawa*] (Ami) refers to ySb without gender specification.

IBAN[8]

1.	*aka*	e [no gender distinction: eB, eZ]
2.	*adi*	y [no gender distinction: yB, yZ]
3.	*menyadi*	Sb
4.	*petunggal*	PSbC ['cousins']
5.	*laki*	H
6.	*bini*	W
7.	*ipar*	A [same generation, both sexes]
8.	*duai*	SpA ['spouse of affine']

The Iban are one of the best documented societies in Southeast Asia and can be considered as a 'classic' case in the ethnographic literature on undifferentiated, bilateral societies. Iban social organisation is based on Ego-oriented bilateral kindred and thus has no system of 'descent' groups; nor have the Iban any rules of directed marriage.

The Iban are, however, much concerned with origins. Particular residential groupings trace their origins through a defined structure within a longhouse. As Sather has noted, each family has its 'source' (*pun bilik*) who is the custodian of the heritable estate including the ritual sacra and ancestral strains of rice (*padi pun*) that provide a critical link between the present and past generations (Sather 1993:70). The continuity of the *bilik* is dependent on residence and may follow either male or female lines. Hence the Iban are a society with 'origin groups' but without a strict system of descent.

The Sa'dan Toraja of south Sulawesi are another 'classic' case in the ethnographic literature. Like the Iban, in Ego's generation the Sa'dan Toraja have five reflexes (*kaka*, *adi*, *[anak]muane/muane*, *baine* and *ipa'*) from the PMP set.

SA'DAN TORAJA[9]

1.	*kaka*	e [both sexes] Sb, PSbC
2.	*adi*	y [both sexes] Sb, PSbC
3.	*sampu*	PSbC ['cousins']
4.	*anak muane*	B, FBS, MBS, FZS, MZS ['brother, male cousins']
5.	*anak dara*	Z, FBD, MBD, FZD, MZD ['sister, female cousins']
6.	*muane*	H
7.	*baine*	W
8.	*ipa'*	A [same generation, both sexes] BW, ZH, HB, HZ, WB, WZ
9.	*sanglalan*	HBW, WZH [SpA, opposite sex]

In their kinship terms for Ego's generation, the Sa'dan Toraja appear to be similar to the Iban. The Toraja share with the Iban reflexes (with the same specifications) for four of the PMP set: (1) *kaka*, (2) *adi*, (3) *baine* and (4) *ipa*. Moreover, Torajan *sampu* specifies the

8 These specific kinship data come from Freeman (1960). In addition to this set of eight reference terms, the Iban use *wai* (Sp) and *ika* (e affine, eSp of affine) as terms of address.

9 These kinship data are from Nooy-Palm (1979:28-29). In addition to these terms, Nooy-Palm notes various alternative forms (with similar specifications) including the term, *siulu' to loloku*, which is a poetic expression for full brother or sister. Cousins, regardless of sex, can be distinguished as 'first' cousins (*sampu pissan*), 'second' cousins (*sampu penduan*) and 'third' cousins (*sampu pentallun*).

same category of relations as the *petunggal* category among the Iban. *Muane*, however, replaces *laki* and has the general sense of 'male'. Furthermore, unlike the Iban, the Toraja discriminate between male and female siblings and cousins.

Despite these similarities, Sa'dan Toraja social organisation differs considerably from that of the Iban. Sa'dan Toraja social organisation is composed of bilateral groups known as *rapu* that have been variously described as 'ramages' or as bilateral 'descent' groups. These groups are focused on a specific ancestor or ancestors (*puang*) associated with particular houses. Houses are themselves distinguished according to the nobility of their origin. Noble houses are known as *tongkonan* while lesser houses are referred to as the *banua* of a particular group. Individuals may trace links to their father's and mother's *tongkonan* and through these links ritually to other distinguished houses. Based on Waterson (1986), who describes houses in terms of their function as origin sites, I have argued that *rapu* can be considered as 'origin groups' with houses providing the physical structures for their representation of these groups (Fox forthcoming). If, among the Iban, 'origins' are structured in terms of apartments within the longhouse, among the Sa'dan Toraja 'origins' are based on a network of houses.

The islands of eastern Indonesia, particularly those in Nusa Tenggara Timur and the Molucca Islands, have been stereotyped as a region with societies possessing lineages and prescribed marriage systems. Although eastern Indonesia does have such societies that may be described in this way, the region is an area of considerable social variability. Neighbouring societies with closely related languages may differ quite considerably in social organisation. Current typologies tend to cast these differences as significantly different types.

The first case to be considered is that of the Ngadha of central Flores whose social organisation would appear to resemble that of the Sa'dan Toraja. Like the Sa'dan Toraja, the Ngadha have bilateral groups known as *vocé* [woé] that trace their origin to a specific male or female ancestor whose cult is located and identified with a particular ancestral house. The kinship terminology of the Ngadha, however, differs in significant ways from that of the Sa'dan Toraja. The Ngadha utilise only seven terms for Ego's generation, of which four (*kaé*, *cazi*, *veta*, *cipa*) appear to be reflexes of the PMP set.

NGADHA[10]

1.	*kaé*	e [same sex: eB (m.s.), eZ (w.s.)]
2.	*cazi*	y [same sex: yB (m.s.), yZ (w.s.)]
3.	*doca*	Sb [same sex: B (m.s.), Z (w.s.)]
4.	*veta*	Z (m.s.)
5.	*nara*	B (w.s.)
6.	*cipa*	WZ, BW
7.	*cédza*	WB, ZH

The critical features of this system that distinguish it from that of the Sa'dan Toraja are that (1) relative age terms are gender specific and are used primarily among members of the same sex; (2) in accord with the gender specific relative age terms, there is a set of opposite

10 These kinship data come from Arndt (1954) and preserve his somewhat idiosyncratic orthography. Compound terms may be formed from these basic terms. Using *tua*, which is the reference term for senior affine, Spouse's Parent (SpP), other affinal reference terms can be formed: thus, *tua cédza* may be used to refer to wife's male relatives; *tua cipa* may refer to husband's female relatives.

sex terms used among siblings (and parallel cousins); and (3) affinal terms are also gender specific: *cipa* refers to female affines in Ego's generation; *cédza* to male affines.

Recent research in the Ngadha area indicates, however, that Ngadha is far less homogeneous an area than the published account by the missionary anthropologist, Paul Arndt (1954), would indicate. The region appears to form part of a complex chain of dialects extending through much of central Flores. The research by Andrea Molnar on a distinctive population of this 'Ngadha area' who identify themselves as Hoga Sara (of Sara-Sedu) points to the use of a set of terms not unlike those reported by Arndt, but with distinctive specifications (especially for the *cipa/cédza* categories) which are associated with different rules of directed marriage. Rules of marriage – whether symmetric or asymmetric – are associated with particular named 'origin houses' (*sa'o mézé*) and clans (*woe*). No single rule of marriage holds for Sara-Sedu as a whole. This research on the Hoga Sara highlights the importance of houses in establishing origins and the possibilities, particularly for first-born children, of attachments to more than one house, as is the case among the Sa'dan Toraja.[11]

If the Sa'dan Toraja and the Ngadha (or Hoga Sara) provide examples of societies that permit the possibilities of bilateral and even multiple attachments to ancestral houses, such possibilities are simply not allowed among the Rotinese of the Timor area. Attachments are restricted to a single house and clan. The Rotinese terminology for Ego's generation, however, resembles that of the Ngadha.

ROTI (TERMANU)

1.	*ka'a*	e [same sex: eB (m.s.), eZ (w.s.)]
2.	*fadi*	y [same sex: yB (m.s.), yZ (w.s.)][12]
3.	*tolano*	Sb [same sex: B (m.s.), Z (w.s.)]
4.	*feto*	Z (m.s.)
5.	*nak*	B (w.s.)
6.	*hi'a*	HZ, BW (w.s.)
7.	*kela*	WB, ZH (m.s.)
8.	*saok*	Sp
9.	*touk*	H
10.	*inak*	W

As in the case of the Iban and of the Sa'dan Toraja, Rotinese possesses reflexes for five (*ka'a*, *fadi*, *feto*, *hi'a* – metathesis of **hipaR* – and *saok*) of the eight PMP forms.[13] Although there is a difference in the referents for *cipa/hi'a*, the first seven of these terms in the Rotinese terminology make virtually the same distinctions that Ngadha's terminology makes.

Differences in social organisation are significant in that the Rotinese possess a more lineal system of named clans and lineages than in Ngadha. Houses conceived as social groups are

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11 Ms Molnar, who did extended fieldwork among the Hoga Sara, is currently completing her PhD thesis in the Department of Anthropology in the Research School of Pacific and Asian Studies, Australian National University.

12 These specifications are a simplification. Elder/younger categories are applied to parallel cousins as well as siblings.

13 In other relational contexts, Rotinese also distinguish between *mane/feto* (male/female) in a way that might reflect the set of the protolexemes, **ma-Ruqanay/betaw*.

of a lesser order than either clans or lineages. On Roti, there is no system of directed or prescribed marriage.

In all of the considerable literature on prescriptive marriage systems among the Malayo-Polynesians, no one has yet focused, in a systematic fashion, on the different lexical resources used to create these various systems.[14] Hence there exists the assumption that the 'prescription of marriage' that occurs in certain societies is a single structural property that can somehow be attributed to the existence of specific lexical resources. Comparative evidence, however, would suggest the opposite: that prescriptive rules have been 'invented' in different parts of the Austronesian world – and even in near neighbouring societies – using different parts of a related lexicon. From this perspective, 'prescription' is not a thing-in-itself but a possible organisational component of some systems that can be structured in different ways using different linguistic resources.

I propose to illustrate this proposition by reference to three 'prescriptive systems'. The first two of these systems, from Sikka and Tana 'Ai on Flores, are particularly instructive.[15] These two societies are linguistically closely related, each using a distinct dialect of the same language.

Like the Rotinese, both Sikka and Tana 'Ai can be said to reckon their origins lineally. In Sikka, however, this reckoning is through males, whereas in Tana 'Ai it is through women. Both societies share most of the same set of terms for relatives in Ego's generation. The only difference between the two is that Sikka preserves the term, *ipar*, which is not used in Tana 'Ai. Both societies prescribe marriage with a particular category of spouse designated within the same generation but, as is evident from the list of each society's kinship terms, Sikka and Tana 'Ai use different terms for the prescribed spouse. The difference is not simply a matter of lexical addition or substitution but rather a fundamental difference in the way the systems themselves are structured.

In the configuration of terminologies that we have already considered, the reflex of **hipaR* has varied in its referents from that of a general category for affine to that of a reciprocal term used between specific female affines. In the Sikka system, there is a further change: *ipar* is used as a reciprocal cross-sex term to designate the prescribed spouse.

SIKKA

1.	*wué*	e [same sex: eB (m.s.), eZ (w.s.)]
2.	*wari*	y [same sex: yB (m.s.), yZ (w.s.)]
3.	*whine*	Z, FZD (m.s.)
4.	*nara*	B, MBS (w.s.)
5.	*ipar*	MBD (m.s.), FZS (w.s.)
6.	*wra*[16]	FZD, MBD, HZ, BW (w.s.)
7.	*kera*	FZS, MBS, WB, ZH (m.s.)

14 This is a systematic study that I have now begun. Here all I can do is illustrate my argument by reference to three different prescriptive systems.

15 For documentation on Tana 'Ai, see Lewis (1988); for Sikka, see Fox (1972); Fox and Lewis (1993).

16 It should be noted that *wra* here is a reflex of one of the candidate terms, **urang*, which I have not included in the PMP set. Thus the Sikka case raises questions of both completeness and indeterminacy with which I began this paper. Reflexes of **urang* are reasonably common in the kinship systems of the Flores/Moluccas region.

From this vantage point, we may consider the Tana 'Ai terminology. To appreciate the beauty of the Tana 'Ai terminology (and terminologies like it), however, it is important to consider the basis for such systems in other Malayo-Polynesian societies. Thus in Malay or Javanese, the term that normally refers to 'elder sibling' or 'elder brother' (*kaka*, *kakanda* in Malay; *kakang*, *kangmas* in Javanese) may also be used as an intimate term of affection or endearment for a 'husband' or 'lover'. Similarly in these languages, the term normally used for 'younger sibling' (*adi*, *adik*, *adinda* in Malay or Javanese) can be used for a 'wife' or 'lover'. This particular use of elder/younger which in some sense assimilates loving spouses to the category of intimate cross-siblings occurs in languages that use the elder/younger terms for both sexes as well as those that normally use the elder/younger terms between same sex siblings.

Some societies give systematic expression to this feature of linguistic usage and make it the basis for designating the 'prescribed spouse'. This is precisely what occurs in the Tana 'Ai system. In Tana 'Ai, the elder category, *wué*, is used by a woman to refer to her sister and her parallel cousin but also to refer to her male cross-cousins (MBS, FZS) from among whom she is enjoined to find a husband. Similarly, the younger category, *wari*, is used by a man to refer to his brothers and parallel cousins but also to his female cross-cousins (MBD, FZD) from among whom he must find a wife. Unlike *ipar* which is used reciprocally in Sikka, *wué/wari* are cross-sex reciprocals in Tana 'Ai.

TANA 'AI

1.	*wué*	e [B, FBS, MZS (m.s.)]
		e [Z, FBD, MZD (FZD, MBD) (w.s.)]
		MBS (w.s.), FZS (w.s.)
2.	*wari*	y [B, FBS, MZS (m.s.)]
		y [Z, FBD, MZD, (FZD, MBD) (w.s.)]
		MBD (m.s.), FZD (m.s.)
		WZ, BW (m.s.)
3.	*winé*	Z, FBD, MZD (m.s.)
4.	*nara*	B, FBS, MZS (w.s.)
5.	*ura*	HZ, BW, FZD, MBD (w.s.)
6.	*kera pu*	WB, ZH, FZS, MBS (m.s.)

The last system I want to consider in this paper is a prescriptive system that occurs among the Lau islanders of Fiji whose language belongs to the Oceanic subgroup of Malayo-Polynesian languages. It has fewer reflexes of the PMP set that formed the starting point of this paper but the fact that it lacks a reflex of **hipaR* and does not use elder/younger categories to define the prescribed spouse means that it uses yet other lexical resources to achieve its own form of prescribed marriage.

This particular Fijian system therefore makes a good contrast with the Sikka and Tana 'Ai systems. Like the Tana 'Ai system, it is elegant in its simplicity. In this case, *wati* is used reciprocally to designate opposite sex marriageable cross-cousins and *tavale* is used reciprocally to designate same sex 'affinal' cross-cousins.

FIJI (LAU ISLANDS)[17]

1.	*tuaka*	e [same sex: eB (m.s.), eZ (w.s.)]
2.	*taði*[18]	y [same sex: yB (m.s.), yZ (w.s.)]
3.	*weka*	Z (m.s.)
		B (w.s.)
4.	*wati*	H, MBD, FZD (m.s.)
		W, MBS, FZS (w.s.)
5.	*tavale*	MBS, FZS, WB (m.s.)
		MBD, FZD, HZ (w.s.)

Hocart's description of this system, which focuses on the island of Lakemba in the Lau Archipelago, is another 'classic' in the anthropological literature. He describes a fluid system of named ancestral clans (*matanggali*) which are ranked as noble or commoner and subdivided into feasting groups known as 'sides of the oven' (*mbati ni lovo*). This clan structure is based on 'origin houses' (*vuvale*; *vu*: 'base', 'origin', 'ancestor', 'god'; *vale*: house).[19] Membership in such houses is determined by adoption as well as by residence rather than by strict rules of descent. The social organisation of Lakemba, especially in its various possibilities of affiliation to houses or origin, resembles that of the Sa'dan Toraja and the Ngadha but with a distinctive system of marriage.

6. CONCLUSION

Kinship terminologies by their subtlety, variability and complexity present an interesting arena for the discussion of the semantics of classification. Having considered examples of the different uses of similar terms in Ego's generation in a few Malayo-Polynesian societies, I return to the question of the 'determinacy of specification'. Based on the variability of the examples I have cited, I would like to consider two possible sets of specifications for the eight PMP candidate terms with which I began. Each of these sets forms a coherent configuration. Although there is no necessary coincidence between a terminology and a particular form of social organisation, nonetheless one would tend to consider these two contrastive configurations as likely to reflect different forms of society.

The first of these possible configurations would have the following specifications:

*CONFIGURATION I

1.	**kaka/aka*	eSb [both sexes]
2.	**huaji*	ySb [both sexes]
3.	**laki*	H ['male']
4.	**binay*	W ['female']
5.	**ma-Ruqanay*	B (w.s.)
6.	**betaw*	Z (m.s.)

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17 These kinship data derive from Hocart (1929) and therefore follow his orthography. *Taci* is now the more common spelling for Hocart's *tathi*; a synonymous term for *wati* is *davola*.

18 The use of *tuaka/taði* is much more subtle than I indicate here. Thus for example, *taði* can be used to refer to yB but also to yBC (m.s.). Since these distinctions do not relate to my argument at this stage, I cite only a truncated list of specifications.

19 It would appear from Hocart's account (1929:17,199) that in the dialect spoken on Lakemba the term *vu* derives from Proto Malayo-Polynesian **puqun*: 'tree, trunk, base, source, origin', rather than from **t-u(m)pu* (or **epu*): 'ancestor, master'.

7.	**hipaR*	WB, ZH, BW, HZ, HB, WZ
8.	**qasawa*	Sp

A society with this sort of terminological configuration would tend towards bilaterality and it might even be possible to maintain bilateral groups with this kind of configuration. Such a society would resemble that of the Iban or the Sa'dan Toraja.

The second of these possible configurations would have the following specifications:

*CONFIGURATION II

1.	**kaka/aka*	eB, eFBS, eMZS (m.s.); eZ, eFBD, eMZD (w.s.)
2.	**huaji*	yB, yFBS, yMZS (m.s.); eZ, eFBD, eMZD (w.s.)
3.	**laki*	H, MBS, FZS (w.s.)
4.	**binay*	W, MBD, FZD (m.s.)
5.	**ma-Ruqanay*	B, FBS, MZS (w.s.)
6.	**betaw*	Z, FBD, MZD (m.s.)
7.	**hipaR*	WB, MBS, FZS (m.s.); HZ, MBD, FZD (w.s.)
8.	**qasawa*	Sp

This configuration suggests a degree of lineality and would be consistent with a two-line system of symmetric marriage. It is by no means as elegant as the Fijian system from the Lau Islands but nevertheless makes the same distinction.

It would be possible to continue this exercise and construct other alternative configurations using these same resources. However, the particular configurations that I have constructed pose an intended contrast. Blust (1980b) has proposed a dichotomy between what he states are two opposing hypotheses regarding 'early Austronesian social organisation': the one a "prescriptive alliance hypothesis" and the other a "bilateral hypothesis". In terms of this dichotomy, Blust has marshalled evidence and arguments in favour of the "prescriptive alliance hypothesis".

I question the usefulness of Blust's typological categorisation of Austronesian societies exclusively on the basis of 'descent'; I am also sceptical of some of his chief arguments; and I remain unconvinced by certain of the data he has assembled in support of them (Fox 1980a, 1988b). Whereas systems of prescriptive alliance are well attested in eastern Indonesia (Blust's CMP subgroup), the overwhelming majority of the societies of the Philippines, Borneo, Sumatra, Java, Bali and Sulawesi (Blust's WMP subgroup) exhibit a bilaterality that is difficult to reconcile with Blust's view of early Austronesian social organisation. Moreover, having studied various native systems of dual classification, I am wary of the classificatory use of dichotomies and of the sides that can be drawn in terms of them.

From this perspective, the two configurations that I have constructed are pertinent, since the first configuration is clearly bilateral while the second is clearly prescriptive. The essential point to be made is that the introduction of a single feature – determination of referent by gender of speaker – can transform Configuration I into Configuration II. As I have argued in another context, "with virtually the same terminological resources, it is as easy to construct a two-line symmetric terminology as it is to construct a cognatic [ie. bilateral] terminology" (Fox 1988b:40). If this is the case, it may be possible to construct either system for Proto Malayo-Polynesian.

Rather than adopting one side in an uncomfortable oppositional dichotomy, it might be more productive to recast the question: where, at what stage, and to what extent did Malayo-Polynesian languages develop the feature of 'gender of speaker' as a prominent defining feature of relationships in Ego's generation? Whereas generation, gender, age and relative age are fundamental to Malayo-Polynesian kinship terminologies, gender of speaker is a more variable feature. It is often elaborated as a major semantic resource in the creation of systems of directed marriage, but would appear to be less developed in many bilateral systems. Tracing the development of this feature in particular may explicate some of the early history of Malayo-Polynesian social formations. There is much that remains to be sorted out at lower order levels of comparison before we can be confident of higher order reconstructions. Research at both levels needs to go hand in hand.

Fox, J.J. "Who's who in Ego's generation: probing the semantics of Malayo-Polynesian kinship classification". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*.
C-127:127-140. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.127*

PROTO CENTRAL PACIFIC FISH NAMES

PAUL GERAGHTY

1. INTRODUCTION

Of all the possible semantic fields that comprised the vocabulary of the speakers of Proto Central Pacific (PCP), the language of the original settlers of Fiji, Rotuma, and Polynesia, I have chosen to concentrate on **ika*.[1] The reasons for my choice are very practical. Firstly, the availability of data: I have done extensive research on fish names in Fiji over the past ten years or so, and there are a number of published works on fish names in other parts of the Pacific. Secondly, the size of the corpus: while a discourse on animals would be relatively brief, and a study of plant names a major undertaking, fish names, which average in Fiji something like 150 to 300 taxa per fishing community, are of a manageable size. Thirdly, the comparability of the data: because the marine environment differs little in the area covered by the Central Pacific languages, apart from the well-known diminuition of taxa from west to east, and also because fish typically have little use culturally other than as food, the semantic scope of fish names tends to be more restricted, and relatively free of the kinds of cultural association that frequently attach themselves to vocabulary in some other semantic fields, increasing the likelihood of semantic change. In other words, I believe that fish names in Pacific languages have been relatively resistant to semantic change, though I have made no attempt to test my belief statistically.

This is not, however, to claim that fish names are resistant to borrowing: as will become evident below, there are many examples of Polynesian fish name loans in Fijian, and vice versa. A rough count of Rotuman fish names also suggests that approximately a third are borrowed from Polynesia, which is comparable to Polynesian loans in the Rotuman lexicon as a whole.

The reconstructions below offer some insights into subgrouping among the Central Pacific languages. While one comparison (PCP **veke* 'octopus') indicates a shared innovation of Rotuman and Polynesian, two (PCP **ije* 'Hemiramphidae' and **ʔono* '*Sphyraena barracuda*') show shared innovations of Rotuman and Fijian. Among Polynesian languages, Fijian appears to share a number of forms exclusively with the outliers, and especially with Emae (cf. PCP **batisai*, **oje*, **bobo*, **kabatia* and **(ʔ)uf(iu))*. I hope to be able to explore the implications of this observation in a future paper.

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1 The range of the PCP word **ika*, usually glossed 'fish', includes also (at least) marine mammals and cephalopods. This also was true of the English word 'fish', until it was commandeered by pedantic science teachers as a translation for the Linnaean 'Pisces'.

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 141-169.
Pacific Linguistics, C-127, 1994.

2. SOURCES OF DATA

I have gathered fish names and identifications from the standard dictionaries of Pacific languages and lists of reconstructions, as well as through fieldwork and from other publications. I have conducted fieldwork in Fiji on and off over the past ten years or so, and gathered lists of fish names from many fishing communities in all parts of Fiji. With the help of numerous ichthyological reference works, and in particular the assistance and encouragement of Dr Antony Lewis, then Principal Research Officer at the Department of Fisheries in Fiji, I have been able to identify most species in the field. I also conducted fieldwork among the Rotuman and Tongan communities in Suva, to check and improve on the data available in the dictionaries.

Other works consulted include the following:

Hooper (this volume)	Proto Polynesian
Pulu (1981)	Tonga
Dalzell et al. (1990)	Niue
Rensch (1983)	East Uvea (Wallis Island)
Mayer (1976:368), Wass (1984)	Samoa
Salisbury (1990)	Pukapuka
Zann (1980)	Tuvalu
Rensch (1988)	French Polynesia
Randall & Cea Egaña (1984)	Rapanui (Easter Island)
Barnett (1978)	Solomons
Akimichi (1978)	Lau (Solomons)
Akimichi & Sauchomal (1982)	Satawal
Johannes (1981:199-202)	Palau

3. RECONSTRUCTIONS

The PCP phonemes **z* (Geraghty 1986:297-300) and **R* (Geraghty 1990:89-91) are difficult to distinguish, so for the purpose of this list are reconstructed simply as **c* and zero respectively.

Proto Fijian forms are all my own reconstructions. Supporting data are not explicitly provided, being implicit in the reconstructions: the distribution of reflexes in Fiji is of no consequence, since a form witnessed anywhere in Fiji and externally may be reconstructed for PFJ. The exception is that if a form is restricted to Lau and/or Eastern Vanualevu, and witnessed externally only in Polynesia, it may be a post-PFJ development, attributable to either Proto Tokalau Fijian (Geraghty 1983:348, 366-382) or more recent borrowing. Such instances are noted. Proto Polynesian and other reconstructed forms, if found neither in the standard works nor in Hooper (this volume), may also be taken to be my own, in which case the necessary data are provided. A form is reconstructed for Proto Central Pacific if cognates are found in any two of these three witnesses, or in any one plus an external witness. For external witnesses, abbreviations which may be unfamiliar are PNV for Proto North Vanuatu (the same as Clark's (1986) Proto North Central Vanuatu) and PSO for Proto Southern Oceanic, the ancestral language of New Caledonia and the Loyalty Islands (Geraghty

1989b).[2] In references to sources for external reconstructions, B stands for Blust and G for Geraghty, so B80a refers to Blust (1980a), and so on. Orthographic and other conventions are as in Geraghty (1986 and 1990): essentially, I write all Eastern Oceanic data in a single consistent orthography, which is based on that of Fijian, so /g/ is [ŋ], /c/ is [ð], and /x/ is a velar fricative.

3.1 LAMNIFORMES (CARCHARHINIDAE, SPHYRNIDAE): SHARKS

**mag(eo)o* 'shark'
PPN **magō*

PSS (TMB *mageo*)

**ʔaso* 'k.o. large shark, *Carcharhinus* sp.'
PFJ **yaso* '*C. amblyrhynchos* (?)'
PPN **ʔaso* (SAM, NUK '*C. albimarginatus*')

**xarawa* 'k.o. large shark'
PFJ **karawa* '*Isurus*'
PPN **ʔalawa* 'k.o. shark' (EUV '*C. limbatus*'; TUV '*C. longimanus*'; REN,TIK '*C. melanopterus*'; TUV, EP '*Negaprion*')

PSO **xarau* 'k.o. shark'

GIT *arawa* 'shark'
PPT **kwarawa* 'shark'

Rotuman *ʔarawa* is a Polynesian loan. The supposed Fijian cognate of PPN **ʔalawa* has long been listed as *yalawa*, as in Capell's (1941) dictionary. This, along with *yane* 'moth', now appears to be a Tongan form inadvertently entered by Cargill in his manuscript dictionary of 1840, and reproduced automatically in every Fijian dictionary since.

**-ufi* 'k.o. large shark'
PFJ **qiō/uvi* '*Carcharhinus plumbeus?*' (*qiō* 'shark')
PPN **naiufi* '*Galeocerdo, Carcharodon carcharias*'

**-taniva* '*Galeocerdo*, tiger shark'
PFJ **qiō/daniva*
PPN **tanifa* 'k.o. large shark'

Rotuman *tanifa* is a Polynesian loan. The derivation from **taniva* 'sardine' is because of the similar irridescent zigzag vertical lines on the sides of the body.

**mataʔitaliga* '*Sphyrna*, hammerhead shark'
PFJ **mataitaliga*
PPN **mataʔitaliga*

Analysable as 'eyes-in-ears'. Rotuman *matuataliga* (Churchward (1940), but not recognised by informants) is a Polynesian loan.

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2 See Appendix for abbreviations of language names.

3.2 MYLIOBATIFORMES (MYLIOBATIDAE): RAYS

**vai* 'Myliobatiformes, ray'
PFJ **vai*
PPN **fai*
ROT *hai*

PMC **fai-*
PSS **vali*
PNV **vaRi*

**vaimanu* '*Aetobatis narinari*, eagle ray'
PFJ **vaimanu*
PPN **faimanu*

PEO **vaRimanu* (G90)

It is possible also to reconstruct PCP **vaibekwa* (PFJ **vaibekwa*, TIK *faipeka*, SAM *faipeʔa*), but the chances of parallel development of the form ('ray' + 'bat') are very high.

3.3 ISOSPONDYLI (ALBULIDAE): BONY FISHES

**k(iu)o* '*Albula*'
PFJ **kikio*
PPN **kiokio*
ROT *ʔuo* 'very bony fish'

PEO **kuRo* (G90)

PWMP **kuRaw* 'edible marine fish' (B80a)

**vula* '*Megalops*'
PFJ **vula*

PWMP **bulan* 'k.o. fish' (B83-84a)

Note that Fijian **vula* is a reconstructed form – reflexes actually occurring are *vuvula* and *yavula*. Although Blust cautiously defines **bulan* as 'k.o. fish', three of the five witnesses specify *Megalops*, a fourth offers a good description, and the fifth is simply 'k.o. sea fish'.

3.4 ANGUILLIFORMES (ANGUILLIDAE): EELS

**tuna* 'Anguillidae, freshwater eel'
PFJ **tuna*
PPN **tuna*
ROT *funa*

**bonu* 'Ophichthidae, snake-eel'
PFJ **bonu*
PPN (TON *ponu* 'intestinal worm', *ponuponu* 'k.o. seaworm')

PSO **bon*

**(bp)ulewa* 'k.o. eel'
PFJ **boila* 'sea-eel'
PPN **pulewa* '*Echidna nebulosa*' (TUV)

PSS (Nggela *puleo* 'k.o. eel')
PNV (cf. MTA *maleo* 'sea-eel')

TON *toke poila* 'k.o. eel' is probably a loan from Fijian.

**bakū* 'k.o. eel'
PFJ **bak(uū)* 'conger'
ROT *pa?u* 'sea-eel'

PSV (LEN *pɨku* 'k.o. eel')

**dābea* 'k.o. sea-eel or sea-snake'
PFJ **dābea* '*Gymnothorax javanicus*'
PPN **tāpea* 'particoloured sea-snake, *Pelamis platurus*' (REN)
ROT *?apea* 'k.o. very long sea-snake'

The Rotuman initial is irregular.

**p(iu)si* 'sea-eel'
PFJ **pisi* '*Echidna nebulosa*'
PPN **pusi* '*Gymnothorax* spp.'

Rotuman *tepuhi* 'k.o. eel' is clearly a Polynesian loan with fused article *te*.

**asuli* 'k.o. sea-eel'
PFJ **suli* 'conger'
PPN **asulu* (SAM '*Strophidon*')

CHM *asuli* 'Anguillidae'
PWMP **kasuli* 'Anguillidae'

**dravua* '*Gymnothorax* sp.'
PFJ **dravua* '*Siderea picta*'
PPN **(rl)afua*

PSO **drayu*

The PPN reconstruction is based on TIK *rafua* (note also RIM *rehui* '*Echidna nebulosa*'). The **y* in PSO may be irregular.

3.5 CLUPEIDAE: SARDINES

**taniva* '*Sardinella*'
PFJ **taniva*

PMC (PON *saip*, PUL *hanif* 'anchovy', TRK *senifa* 'herring')
PNV **taniva* (URI *daniv*)

Lo (Admiralties) *tenih* (B76b)

NUK *sanipa* 'silversides' is presumably a Nuclear Micronesian loan.

*niva 'Sardinella sp.'
PFJ *niva 'S. melanura, fijiense'
PPN *nifa

*yavu 'Spratelloides sp.'
PFJ *yavu
ROT ahu 'k.o. fish'

*ʔotu 'Spratelloides sp.'
PFJ *otu 'Stolephorus'

PSO *xot(iu)n 'Praneus'

The genus Praneus is a member of the Atherinidae (hardyhead, silversides) family, but very similar in appearance and habit to sprats.

*cacā 'Spratelloides sp.'
PFJ *cacā
PPN *(hs)a(hs)ā

PPN *sasā is reconstructed by Hooper (this volume), but TIK ā 'small reef fish of anchovy type' requires the reconstruction of a disjunct, pending proof of borrowing.

*ʔuluqwau 'k.o. small schooling fish'
PFJ *uluqwau 'Atherinidae'
PPN *ʔulukau 'Sardinella' (TON)

*sarā 'k.o. small schooling fish'
PFJ *sarā 'Atherinidae'
PPN *sarā 'k.o. small schooling fish'

The PPN reconstruction is based on TON hā 'very small schooling fish, like whitebait' (dubious cognate), NUK salā 'flying fish', LUA salā 'small blue fish', SIK salā 'k.o. fish', TAK sarā 'k.o. small fish'. Churchward's (1940) Rotuman sarā 'k.o. fish' is unknown to informants. An irregular development is PPN *salī, 'Atherinidae' (TON helī, SAM salī, TUV sali, REN saqi), but see *dralā (section 3.18) for a similar correspondence set.

3.6 ENGRAULIDAE: ANCHOVIES

*vaya 'k.o. anchovy'
PFJ *vaya 'Thrissina baelama, anchovy'
PPN *fā (SAM 'Megalops')

GIT paya 'anchovy, pilchard'
MAN wayawaya 'sardine'
PMP *paya 'k.o. small fish, sardine or anchovy' (B80a)

3.7 SYNODONTIDAE: LIZARD FISHES

*dolo 'Saurida, lizard fish'
PFJ *dolo
PPN *tolo

The PPN reconstruction is based on TIK *toro*, EUV *tolo* 'goby', SAM *tolo* 'small mudskipper'.

3.8 CHANIDAE: MILKFISHES

**ʔawa* '*Chanos*'
PFJ **yawa*
PPN **ʔawa*

PSS **awa*
PAN **qawaʔ* (B80a)

3.9 PLOTOSIDAE: EEL CATFISHES

**kaboa* '*Plotosus*, catfish'
PFJ **kaboa*
PPN **kapoa*

PEO **kaboRa* (G90)

3.10 EXOCOETIDAE: FLYING FISHES

Flying fish are rarely, if ever, fished in Fiji, though they are an important food source in many parts of Polynesia. **mālolo*, **sasawe* and **sipa* can all be reconstructed for PPN, but both Fijian *mālolo*, which is confined to Lau, and Rotuman *sasave* appear to be Polynesian loans. (See also next item.)

3.11 HEMIRAMPHIDAE: HALFBEAKS, GARFISH

**b(iu)sa*, **s(iu)pa* '*Hemiramphus*'
PFJ **busa*
PPN **sipa* 'k.o. small flying fish'

**ije* 'Hemiramphidae'
PFJ **sise*
PPN **ise*
ROT *jija*

PEO **Rije* (G90)

LAK *lise*

Prothesis of **s* or **j* appears to be a shared innovation of Fijian and Rotuman.

**gwa(kx)a* '*Hemiramphus*'
PFJ **g(w)aka*
PPN (**gaʔa* '*Rastrelliger*')

PTK **mwaki* 'juvenile *Strongylura*'
PPT (**mwaka* 'tooth')

3.12 BELONIDAE: NEEDLEFISHES

**(cs)aku* 'Belonidae'
PFJ **saku*
PPN **haku*

PMC **saku*
MAN *sa?u* 'garfish'

3.13 ATHERINIDAE: SILVERSIDES

See **?otu*, **?uluqwau* and **sarā* (section 3.5) for possibilities.

3.14 HOLOCENTRIDAE: SQUIRRELFISHES

**ta?a* '*Sargocentron spinifer*'

PPN **ta?a*

PEO **taRa?a* (G90)

**ma(rl)au* 'Holocentridae'
PFJ **merau* '*Sargocentron*' (PN loan?)
PPN **malau*

**kuru* '*Myripristis*'
PFJ **kuru*
PPN **kuru*
ROT *?uru*

PMC **kuru* 'Holocentridae' (KIR *kū*, MOK *kīr*, TRK *kkɨjɨ*)

3.15 SYNGNATHIFORMES (AULOSTOMIDAE): TRUMPET-FISH

**bābā* '*Fistularia*, flutemouth'
PFJ **bābā*
PPN **pāpā*

CHM *ba?yak* '+ *Aulostomus*'

3.16 SCORPAENIDAE: SCORPION-FISHES

**ñovu* '*Synanceia verrucosa*, stonefish'
PFJ **ñovu*
PPN **nofu*
ROT *nohu*

Churchward's (1940) *nuhu* for Rotuman is denied by informants.

3.17 DACTYLOPTERIDAE: FLYING GURNARDS

**lulu* '*Dactyloptena*'
PFJ **lulu*
PPN **lulu*

The PPN reconstruction is based on TON *lulu/tahi* (*tahi* 'sea') and MAE *ruru* 'k.o. fish'. However, there is a strong likelihood of parallel development from **lulu* 'owl'.

3.18 SERRANIDAE: GROUPERS

**donu* 'adult *Plectropomus*'
PFJ **donu*
PPN **tonu*
ROT *tonu* '*Cephalopholis argus*'

**dralā* 'red *Cephalopholis* sp.'
PFJ **dralā* '*C. miniatus*'
PPN **lalī* (PUK *lalī* 'scarlet sea bass', TAH *rari* '*C. sexmaculatus, coatesi*', RAP *rari* '*Epinephelus fasciatus*')

The PPN reconstruction is highly speculative, the final vowel being quite irregular, but showing a similar correspondence to **sarā* (see section 3.5).

**gwajala* '*Epinephelus* spp.'
PFJ **kasala*
PPN **gatala*
ROT *vajala*

The Fijian *k* is irregular.

**kwavu* '*Epinephelus* sp.'
PFJ **kwavu* '*Promicrops*, giant rock cod; *E. hoedti*'

PSS **xulavu*
PMC **ku(r)au* (KIR *kuau* '*E. merra*', MOK *kiro* '*Epinephelus* sp.')

If this comparison is correct, PEO **kuRavu* is implied, and a solution offered as to the origin of the Fijian labiovelar /kw/ (Geraghty 1983). Note that POC **mw*, the source of the labiovelar nasal /gw/ in Fijian, also appears to have originated, at least in part, from coalescence with a following unstressed **u*, for example, **ma-Ruqanay* 'male' > POC **mwaʔane* (with metathesis).

**koto* '*Epinephelus* sp.'
PFJ **koto*

PMP **keRteng*

**munua* 'large *Epinephelus* sp.'
PFJ **munua* 'large *E. microdon*'
PPN **munua*

3.19 TERAPONIDAE: TERAPON PERCHES

See under **kawakawa* in section 3.45 for a discussion of the Polynesian terms for *Terapon jarbua.*

3.20 KUHLIDAE: MOUNTAIN BASSES

**sesere* 'immature *Kuhlia rupestris*'
PFJ **sesere*
PPN **sese(rl)e*

3.21 PRIACANTHIDAE: BIG-EYES

It is possible to reconstruct **matapula* from forms in PFJ and PPN, but the Fijian is probably borrowed from Polynesian; in any case there is a high probability of parallel development ('eye' + 'wide-open').

3.22 APOGONIDAE: CARDINALFISHES

See **vo(ʔ)o* in section 3.65.

3.23 ECHENEIDIDAE: REMORAS

See **bakewa* in section 3.65.

3.24 CARANGIDAE: JACKS

**laci* '*Scomberoides* sp.' (= *Chorinemus* sp.)
PFJ **laci*
PPN **la(h)i*

PMC **lasi* (KIR *nari*)

Hooper (this volume) reconstructs PPN **lai*, but both the putative Tongic reflexes are glossed 'k.o. fish', so PPN **lahi* remains a possibility.

**ʔatule* '*Selar crumenophthalmus*'
PFJ **yātule*
PPN **ʔatule*
ROT *afule*

PMC (KOS *ahtol*; MOK *aotol* 'large mackerel')

PSV (LEN *iesɨl* 'sardine, anchovy')

As noted elsewhere (Geraghty, in press), the lengthening of pretonic /a/ in Fijian is irregular, but not uncommon.

**qawaqawa* '*Gnathanodon*'
PFJ **qawaqawa* '+ *Trachinotus*'

GIT *kawakawa* 'golden trevally'

**vilu* '*Gnathanodon, Trachinotus*'
PFJ **vilu*
PPN **filu* '*Gnathanodon* (TON), *Trachinotus* (EUV), *Carangoides* (SAM)'

GIT *pilu* 'k.o. trevally'
PAL *uiî*

**jeu* 'Carangidae sp.'
PFJ **seu* '*Gnathanodon*'
PPN **teu* '*Caranx* sp.'

Note also PPN **āseu* '*Caranx* sp.'. The Fijian is said to be related to the verb *seu-t* 'dig (sand)'.

**ʔulu(a)* '*Caranx ignobilis*'
PFJ **uluulu*
PPN **ʔulua*

Obviously formally problematic. Possibly derived from **ʔulu-* 'head', because of its impressive-looking head, cf. another Fijian name for this species, *uluqwāqwā* 'strong-head'.

**i-kata* 'large *Caranx* sp.'
PFJ **i-kata* '*C. sansun*'
PPN **kata*

Some doubt due to semantic transparency in the Fijian form, which means 'biter', that is, predator.

**lawega* '*Alectis*'
PFJ **lawega*
PPN **lawega* 'k.o. fish'

PPN is based on SAM *lavena* 'k.o. fish', REN *qavega* 'k.o. small fish', TIK *ravega* 'k.o. large fish'. This form is presumably related to PCP **lawe* 'long feather, plume', referring to the long plume-like dorsal and ventral fins.

3.25 CORYPHAENIDAE: DOLPHINFISH

PFJ **sila* may be related by metathesis to PMP **laji* 'dolphinfish', but see **laci* in section 3.24.

3.26 LEIOGNATHIDAE: PONYFISHES

**cula(ʔ)a* '*Gazza minuta*'
PFJ **culā*

PAL *tuiʔ*

This reconstruction is highly tentative, not only because of the lack of cognates other than Fijian and Palauan, but also because the putative Palauan cognate, culled from my notes, is found neither in the standard Palauan dictionary (Josephs 1990) nor in Johannes (1981). I include it still in the hope that someone will be able to confirm or deny the Palauan form.

3.27 CAESIONIDAE: FUSILIERS

**tikawa* '*Caesio* sp.'
PFJ **tikawa*
PPN **tikava* (SAM,TIK 'k.o. fish', PUK 'juvenile *Caesio*')

**culi* '*Caesio* sp.'
PFJ **(cs)uli(cs)uli*
PPN **huli*

The PPN reconstruction is based on TON *huli*, SAM *ulisega*, and PUK *uli*. NIU *ulihega* 'herring', if cognate, is probably a loan from a Nuclear Polynesian language.

3.28 LUTJANIDAE: SNAPPERS

**tāeʔa* '*Lutjanus gibbus*'
PFJ **tāea*
PPN **tāeʔa* (NP)
ROT *taeaʔa* 'k.o. red fish with orange fins' is probably a Polynesian loan.

**boʔa* '*Lutjanus* sp.'
PFJ **boa* '*L. gibbus*'

CHM *buʔa* '*L. vaigiensis*'

**kwak(ae)* '*Lutjanus monostigma*'
PFJ **kwak(ei)* '+ *L. fulviflamma*, *fulvus*'
PPN **kaka* (SAM '+ *Lutjanus* sp.')

**batisai* '*Lutjanus monostigma*'
PFJ **kake/batisai*

MAE *patisai* 'k.o. large *Lethrinus*'

The Emae form may be Polynesian or a Vanuatu loan.

**taciwa* '*Lutjanus* sp.'
PPN **tā(h)iva* '*L. monostigma*?'
ROT *sasiva*

Rotuman shows regular assimilation, cf. *sasi* 'sea' < **taci* (Geraghty 1986:293-294). NTP *taʔiva* is not consistent with this PPN reconstruction, which is required by the Rotuman cognate; I suspect the glottal stop is spurious.

**takabe* '*Lutjanus kasmira*'
PFJ **takabe*
PPN **takape*

Kiribati *takape* is probably a Polynesian loan. Most of Western Polynesia has replaced this with *savane/havane.*

**ʔuto* '*Aprion virescens*, grey jobfish'
PFJ **ut(ou)*
PPN **ʔutu*

PAL *ʔudel*

Rotuman *ʔutu* is clearly a Polynesian loan.

**(cs)abutu* '*Lutjanus* or *Lethrinus* sp.'
PFJ **(cs)ābutu* '*Lutjanus bohar*, *L. rivulatus*, *L. malabaricus*, *L. gibbus*; *Lethrinus kallopterus*, *L. mahsena*'
PPN **saputu* '*Lutjanus rivulatus*, *L. gibbus*; *Lethrinus miniatus*, *L. chrysostomus*, *L. kallopterus*'

MTU *dabutu* 'k.o. fish'

Churchward's Rotuman *saputu* 'k.o. fish' is not confirmed by informants. For the long vowel in the Fijian reflex, see under *ʔatule* (section 3.24).

3.29 NEMIPTERIDAE: MONOCLE BREAMS

3.30 GERREIDAE: MOJARRAS

**matu(matu)* '*Gerres*'
PFJ **matu(matu)*
PPN **matu*
ROT *mafu*

PMC **matumatu* (MRS *méjméj*)

3.31 HAEMULIDAE: GRUNTS AND SWEETLIPS

3.32 LETHRINIDAE: EMPERORS

(See also **(cs)abutu* in section 3.28.)

**(bm)ū* '*Monotaxis grandoculis*'
PFJ **mū*, **bū*
PPN **mū*

**ikatuʔu* '*Gnathodentex*'
PFJ **ikatū*
PPN **ikatuʔu*

The PPN reconstruction is based on only KAP *ikatū* 'k.o. fish' and MVA *ikatū* 'k.o. small seasonal fish'. The glottal stop is supplied from **tuʔu* 'stand' because of the morphemic transparency of the word in Fijian, *Gnathodentex* having the habit of stopping suddenly.

This is a highly speculative reconstruction on account of both the morphemic transparency and the lack of identifications for the Polynesian forms.

**kabatiko* '*Lethrinus* sp.'
PFJ **kabatiko* '*L. harak*'
PPN **kapatiko* (TON *kepesiko* 'k.o. fish', TUV *kapatiko* '*L. elongatus*')

**kabatia* '*Lethrinus* sp.'
PFJ **kabatia* '*L. harak*'
PPN (MAE *ikabatia* '*Lethrinus* sp.')

**kacika* 'large *Lethrinus* sp.'
PFJ **ka(cs)ika* '*L. xanthocheilus*'
ROT *?asi?a*

PMC (MOK *katek*, SAT *yátik*, CAR *atix*)
PSS (STA *xasixa* '*L. elongatus*')

**kawago* '*Lethrinus nebulosus*'
PFJ **kawago*
PPN **koago* (TON *koago*, EUV *kuago* '*L. xanthocheilus*')

PSS **kawago* (LAU *?akwago* 'k.o. large fish', SAA *awago* 'k.o. fish eaten only by older men')

**gu(jt)ula* '*Lethrinus elongatus*'
PFJ **gu(st)ula*
PPN **gutula*

**kulabo* 'Lethrinidae sp., probably *Gnathodentex* sp.'
PFJ **kulabo* '*Gymnocranius*'
PPN **kulapo* (TON *kulapo*, EUV *kulapo* '*Lethrinus nematacanthus*')

PWMP **kulambar* '*Gnathodentex*, *Scolopsis*' (B86)

Rotuman *ulapu* 'k.o. fish' may be related, but **k* is not usually lost.

3.33 MULLIDAE: GOATFISHES

**t(ei)?(ou)* '*Upeneus vittatus*'
PFJ **teu*

MTA *tio* 'k.o. fish with barbules'
MOK *je* 'k.o. goatfish' (PMC **tōmea* '*Mulloidichthys*')

MTU *sio* 'k.o. fish'

PAL *de?* '*Mulloidichthys flavolineatus*'
CHM *ti?ao*
PAN **Ciqaw* 'goatfish'

**tewe* '*Mulloidichthys* sp.'
PPN **wete*

PMC **tewe* (KIR *tewe*, ULI *sou*)

Possibly belongs to the preceding set, in which case **i* > **e* is a shared innovation of PMC and PCP (but not PNV), and **ʔo* > **we* is a shared innovation of PMC and PPN (but not Fijian). PPN shows metathesis.

**(ʔ)avulu* '*Mulloidichthys vanicolensis*'
PPN **(ʔ)afulu*

PMC (PON *epil*)

The PPN reconstruction is based on SAM *afulu* 'juvenile *M.vanicolensis*', TUV *afulu*, NUK *ahulu* 'k.o. goatfish', REN *ʔahuqu* 'small fish said to resemble the parrotfish', and PEP **kahuru* 'k.o. goatfish' (**ʔ* > *k* irregular).[3]

**oje* '*Mulloidichthys* spp.'
PFJ **ose*
PPN **ose*
ROT *oje* '*M. vanicolensis*'

The Rotuman is from informants. Churchward (1940) gives *oji* 'fish, long-shaped, pinkish, with yellow tail, large eyes', which may refer to *M. vanicolensis*. The PPN reconstruction is based only on MAE *ose* '*Parupeneus* sp.', but a loan seems highly unlikely.

**gwacaci* '*Parupeneus* sp.'
PFJ **g(w)acaci*
ROT *vasasi*

PSS **mwa(cs)a(cs)i* (Langalanga, ARE, ULW)

PMC (PON *mwamwalis* '*P. chryserydros*', MOK *mwoatoal* 'k.o. goatfish')

**matuxurau* '*Parupeneus* sp.'
PFJ **matukurau* '*P. porphyreus*'
PPN **matuʔulau*

The PPN reconstruction is based on EUV *matuʔulau* '*P. barberinus*', SAM *matūlau*, KAP *matuailau*, NUK *matuilau*, TIK *motūrau* '*Upeneus vittatus*', MQN *matuʔau*, and the Polynesian loan in Rotuman *matuaʔrau* '*P. trifasciatus*'.

3.34 MONODACTYLIDAE: SILVER BATFISHES

3.35 PEMPHERIDAE: SWEEPERS

PNP **manifi* may be related, with metathesis, to Rotuman *mahini* 'k.o. fish'.

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3 The fate of Proto Polynesian glottal stop in Eastern Polynesia appears from this study to be not so straightforward as previously assumed. Apart from this instance of PEP **k*, Rensch (1988) lists the following examples of PPN **ʔ* > Tuamotu /h/: **teʔeteʔe* '*Arothron*, pufferfish' > *tehetehe, tetehe*, **tāeʔa* '*Lutjanus gibbus*' > *tahea*, **ʔalawa* 'k.o. shark' > *harava*.

3.36 KYPHOSIDAE: RUDDERFISH

**r(ae)nu(ae)* '*Kyphosus*'
PFJ **rēnua*
PPN **nanue*

PMC (PTK **r(ae)nu*)

The Tongic subgroup loses **na-* irregularly; EUV *nue* is probably a Tongan loan.

3.37 EPHIPPIDAE: BATFISH

**vuna* '*Platax*'
PFJ **vunavuna*

PMC (MOK *pwūn*)

PMP **buna* 'k.o. fish' (B80a), reflexes include: SEI *pur* 'large flat white pelagic fish', AUA *puna* = Pidgin *plangpis*, cf. *plang* 'plank, board'.

3.38 CHAETODONTIDAE: BUTTERFLY FISHES

**tivitivi* '*Chaetodon* spp.'
PFJ **tivitivi*
PPN **tifitifi*

PNV **tivitivi* (MTA)

Rotuman *tiftifi* is a Polynesian loan.

3.39 POMACANTHIDAE: ANGELFISHES

3.40 POMACENTRIDAE: DAMSELFISHES

**duku* 'Pomacentridae'
PFJ **duku* '*Abudefduf*'
PPN **tu(tk)uku*
ROT *tutu?u*

**mu(td)u* '*Abudefduf*'
PFJ **(td)umu*
PPN *mutu*
ROT *mutu*

PAL *mud* 'damselfish'

Rotuman *mutu* may be a Polynesian loan. The Fijian is metathesised.

3.41 CIRRHITIDAE: HAWKFISHES

Fijian *pātuki* is almost certainly a Polynesian loan, being confined to Lau.

3.42 MUGILIDAE: MULLETS

**kanace* '*Mugil* spp.'
PFJ **kanace*
PPN **kanahe*
ROT *ʔanasi*

PNV **kanace*
PMP **kanasay* (B80a)

**kava* '*Liza vaigensis*, diamond-scaled mullet'
PFJ **kava*
PPN **kafa*

PMC **karafa*
PEO **kaRava* (G90)

**kavakava* 'juvenile *Liza vaigensis*'
PFJ **kavakava*
PPN **kafakafa* (TOK, PUK, MVA)

Possible parallel development.

**ʔaua* 'juvenile or small species of mullet'
PPN **ʔaua*
ROT *aua*

PEO **ʔaRua* (G90)

**jeʔevo(ou)* 'juvenile mullet'
PFJ **sēvou*
PPN **teʔefō* (TON)

3.43 SPHYRAENIDAE: BARRACUDAS

**ʔono* '*Sphyraena barracuda*'
PFJ **ogo*
PPN **ʔono*
ROT *ogo*

PSS **ono*

The irregular change of **n* to /g/ is a shared innovation of Fijian and Rotuman.

**motomoto* '*Sphyraena* sp.'
PFJ **motomoto*
PPN **motomoto*

The PPN reconstruction is based on EUV *motomoto* and MAE *motomoto* '*S. bleekeri*'. Perhaps related to PCP **moto* 'spear' (see next item).

**(sj)ao(sj)ao* 'small *Sphyraena*'
PFJ **sāsā*
PPN **(st)ao(st)ao*

Probably derived from PCP **jaojao* 'slender', itself related to PCP **jao* 'spear'. The PPN reconstruction is based on EUV *saosao* 'juvenile *Sphyraena* sp.', SAM *saosao*, TOK *haohao* '*S. forsteri*', TIK *saosao* 'juvenile *Sphyraena* sp.', TUV *taotao* '*S. forsteri*'. Rotuman *saosao* is probably a Polynesian loan. TAH *ti?atao* appears to be an innovation formed from *ti?a* 'straight' and *tao* 'spear'. The Tuvaluan form may be due to such analogy. It is remarkable that PCP **j* should become PPN **t* in 'spear' but PPN **s* in this item.

3.44 POLYNEMIDAE: THREADFINS

3.45 LABRIDAE: WRASSES

**tagava* '*Cheilinus undulatus*'
PFJ **tagava*
PPN **tagafa* (TON, SAM)
ROT *fahaga*

GIT *tagavaru*

Rotuman shows metathesis.

**dradravi* 'medium-sized *Cheilinus*'
PFJ **dradravi*
PPN **lalafi*

**kawakawa* 'Labridae sp.'
PPN **kavakava* '*Epibulus, Bodianus*'
ROT *?ava* 'k.o. brownish fish'

PMC **kawakawa* (WOL *xawexaw* '*Chlorurus* spp.')

PSS (ARO *?a?awa* 'blenny')

The PPN reconstruction is based only on Eastern Polynesian forms. If this reconstruction is valid, then the meaning '*Therapon jarbua*', which is assignable to PPN by virtue of reflexes in Tongan, East Uvean and Samoan, must be an innovation which spread after the break-up of PPN.

**m(ae)rari* '*Novaculichthys*'
PPN **m(ae)rari* '+ Labridae'
ROT *marari*

PMC **merari* 'Labridae sp.'

The PPN reconstruction is based on PNP **m(ao)lali* 'wrasse sp.' and TON *meai* 'k.o. fish, rather like parrotfish'.

**labe* 'Labridae spp.'
PFJ **labe* '*Coris, Anampses, Halichoeres, Novaculichthys*'
PPN **labe* (SAM '*Thalassoma*', TUV '*Thalassoma*', NUK *lapelapeuliuli*, TIK *rape*, MAE *rape*)

PSS **labe* 'weak'
ILK *lampay* 'weak'

**tuvu* 'Labridae sp.'
PFJ **tuvu* '*Coris aygula*'
PPN **tufu*

The PPN reconstruction is based on TON *tufu* '*Thalassoma*', SAM *tufu* 'k.o. fish', and KAP *tuhu* 'k.o. fish'; cf. EUV *tufu* '*Scarus venosus*' (misidentification?)

3.46 SCARIDAE: PARROTFISHES

**mami* '*Bolbometopon*'
ROT *mami*

PMC **mami* 'k.o. fish' (PUL 'large, perhaps wrasse')

PMP **mamin* 'k.o. wrasse' (PAL *maml* '*Cheilinus undulatus*')

**ʔulurua* 'large *Scarus* sp. with hump on head'
PFJ **ulurua* '*S. gibbus*'
PPN **ʔulu(rl)ua* 'parrotfish with large humped head, probably *Chlorurus microrhinos*' (REN)

Strong likelihood of parallel development: **ʔulu* 'head' + **rua* 'two'.

**ʔulavi* '*Scarus harid* '
PFJ **ulavi*
PPN **ʔulafi*

PMC **ulafi* 'k.o. fish' (KIR *unai* '*Scarus ghobban*')

The PPN reconstruction is based on EUV *ʔulafi* '*S. brevifilis*', EFU *ulafi* , TOK *ulafi*, TUV *ulafi*, KAP, NUK *ulahi* , TIK *urāfi* '*Scarus* sp.'

**ma(rl)ega* 'blue *Scarus* sp.'
PPN **ma(ln)ega*

PSS (BRW *marega*, BRE, ARO *mariga*)

The PPN reconstruction is based on, inter alia, TON *menega*, NIU *monega*, NTP *menega* '*Scarus jonesi*', KAP *melege* 'k.o. large parrotfish', NUK *manega*, MVA, TUA *manega* '*S. gibbus*', PUK *mānega* 'big blue parrotfish', RAP *mamariga* '*S. ghobban*'.

**kam(ou)tu* 'female *Scarus* sp.'
PFJ **kāmotu* '*Scarus sordidus*, female'
PPN **kamutu*

The PPN reconstruction is based on TON *kamutu*, TOK *kāmutu* '*S. jonesi* female'.

**qil(iu)* '*Scarus* sp.'
PFJ **qilu* '*S. chlorodon, niger*'

PON *kilikil*

**bobo* '*Scarus* sp.'
PFJ **bobo* '*S. sordidus*'
PPN **popo* (MAE 'small parrotfish')

**g(ou)va, *v(ou)ga* '*Scarus* sp.'
PPN (SAM **fugafuga*)
ROT *goahgoha*

**bōsē* '*Scarus* sp.'
PFJ **bōsē*
PPN (NTP **pōsē*, PUK **mōyē* 'k.o. wrasse')

Possibly Fijian loan in Niuatoputapu, in which case PUK *mōyē* points to PPN **mōsē*, another instance of the correspondence noted in section 3.32, where Fijian initial /b/ corresponds with PPN **m*.

3.47 MUGILOIDIDAE: SANDPERCHES

Fijian *ikotokotonivōsai* and PNP **takoto* (EUV, SAM), although evidently similar, are both independently derived from the verb meaning 'lie down', which is all this fish does.

3.48 BLENNIIDAE: BLENNIES

**manoko* 'Blenniidae'
PFJ **m(ai)noko*
PPN **manoko*

Rotuman *manoko* '*Periophthalmus*' is a Polynesian loan. The PPN reconstruction is based on EFU *manoko* 'k.o. fish', SAM *mano?o*, NUK *manoko* 'Gobiidae', REN *manoko*; contrast with EUV *panoko*, TIK *panoko*, MAO *panoko* 'k.o. fish', RAR *panako* 'k.o. small fish like minnow', MIA *panako*, EAS *pāroko*, MQN *pāoko*, HAW *pāo?o*.

**lokuya* '*Salarias*'
PFJ **lokuca*
PPN **l(oa)kua*

The PPN reconstruction is based on TON *lokua* and NIU *lakua*.

**t(a,i)drae* '*Periophthalmus*, mudskipper'
PFJ **tidrai*
PPN **talae*

PPN **talae* is based on TON *telae* 'k.o. fish', SAM *talae*, TOK *tālau*. The PCP is not a very firm reconstruction.

3.49 GOBIIDAE: GOBIES

**cigana* 'whitebait'
PFJ **cigana*
PPN **(h)inaga*

ROV *zigana*

**bakovu* 'Gobiidae'
PFJ **bakovu*
PPN **pakofu*

PSS **baxovu* 'k.o. mud fish'

3.50 ELEOTRIDAE: SLEEPERS

**(ʔ)uv(iu)* 'Eleotridae'
PFJ **uvi*
PPN (MAE **ufu* 'blenny')

3.51 ZANCLIDAE: MOORISH IDOLS

Fijian *laca* and Rotuman *laelae* are probably independently derived from the respective words for 'sail', *laca* and *lae*.

3.52 ACANTHURIDAE: SURGEONFISHES AND UNICORNFISHES

**via* '*Zebrasoma veliferum*' (G90)
PFJ **via*

POC **viRa*

PAL *bise?*

As noted in Geraghty (1990:78), this name is derived from **viRa* '*Alocasia*, swamp taro', which also is unpalatably acid unless the skin is carefully removed. An identical development is found in Rotuman, where *ʔapea* means both 'swamp taro' and '*Zebrasoma veliferum*'.

**masa* '*Zebrasoma scopas*'
PFJ **masa*
PPN **ma(hs)a*

**maʔeto* '*Ctenochaetus*'
PFJ **meto*
PPN **maʔito*
ROT *vaefa* '*Acanthurus triostegus*'

PNV **maʔeto* 'black' (also Paama *nameto* 'k.o. black fish')
PSS (LAU *maeto* 'k.o. surgeonfish')

The cognacy of the Rotuman is in some doubt because of the irregular initial and the specific definition, though the final vowel is regular. The vowel change in Fijian is also regular (Geraghty & Pawley 1981). It is remarkable that the **i* of POC **maʔito* 'black' has been

retained as such in this etymon in PPN, but lowered to **e* in PSS, PNV, Fijian, and Rotuman. (See also remarks under **(bp)olo*, next item.)

**(bp)olo* '*Ctenochaetus*'
ROT *polo*

PSS **(bp)olo* (LAU 'k.o. small black surgeonfish')

REN *poqo* '*A. blochii*' [= *A. mata*] is clearly related, but there is no way of determining whether the word is Polynesian or a Solomons loan.

**pone* '*Acanthurus nigrofuscus*'
PFJ **pone*
PPN **pone* 'small black *Acanthurus* spp.'

Probably a Polynesian loan in Fiji, where it is confined to Lau. This may be the Polynesian reflex of PCP **(bp)olo* (above), in which case the apparent Rennellese reflex is a Solomons loan.

**(cs)abi* '*Acanthurus guttatus*'
PFJ **(cs)abi*
PPN **sapi*

KIR *ripa* '*A. gahhm*' is probably cognate, but it is not clear which of the two is metathesised.

**balagi* '*Acanthurus xanthopterus*'
PFJ **balagi*
PPN **palagi*

PMC **pwilagi* 'k.o. surgeonfish'

**manini* '*Acanthurus triostegus*'
PFJ **manini*
PPN **manini*

The Fijian reflex is confined to northern Vanualevu and Lau, so it is possible, but by no means certain, that it is a Polynesian loan.

**borava* '*Acanthurus lineatus*'
ROT *poraha*

PSS **belava* (TMB *belafa*, LGU *belava*, ARO *biraha*)

**tusi* '*Acanthurus* sp.'
PFJ **tusi* '*A. lineatus*'
PPN **tusi* '*A. olivaceus*' (TAH, MQS, MQN)

Note also SAM *tusia* 'k.o. fish'. Possible parallel development from **tusi* 'stripe'.

**?avali* '*Acanthurus* sp.'
PFJ **yavali* '*A. gahhm*'
PPN **?afali*
ROT *alahi* 'k.o. fish'

The Rotuman is metathesised.

NOTE: The members of the *Naso* genus of this family differ in having a fixed rather than retractable spine on either side of the base of the tail.

**ʔume* '*Naso unicornis*'
PFJ **ume* ' + *N. herrei*'
PPN **ʔume* ' + *Naso* spp.'

PSS **ume*
PAL *ʔum*

**tā* '*Naso unicornis*'
PFJ **tā*

PEO **taRa* (G90)

CHM *tataga?*

Although this comparison is formally impeccable, **ʔume* is far more widely attested; these forms may have derived independently from **taRa* 'chop, slash' with reference to the sharp peduncular plates.

**-ma(cs)ima(cs)i* '*Naso* sp.'
PFJ **tā/ma(cs)ima(cs)i* '*N. brevirostris, hexacanthus*'
PPN **ʔume/masimasi* '*N. vlamingii*' (SAM)

3.53 SIGANIDAE: RABBIT-FISHES

**(kq)ito* '*Siganus punctatus*'
PFJ **kito* '*S. chysospilos*'
PPN **kito*
ROT *kifo* '*S. rostratus*'

CHM *hiteng* '*S. punctatus*'
PWMP **kiteng* 'k.o. marine fish with venomous dorsal spines' (B80a)

The PPN reconstruction is based on SAM *tito* '*S. punctatus*' (**k* > *t* irregular), TUA *kito* '*Epinephelus microdon*', and RAP *kito* '*E. tuamotensis*'. The Epinephelidae resemble the Siganidae in having dangerous spines. Rotuman *k* points to PCP **q* rather than **k*.

**volaca* '*Siganus vermiculatus*'
PFJ **volaca*

PSS **v(ao)la(cs)a* (LAU (Fox 1974) *folata* 'k.o. fish', (Akimichi 1978) *falata* '*Siganus* sp', STC *farata* '*S. rostratus*')

**maʔawa* '*Siganus rostratus*'
PFJ **māyawa*
PPN **maʔawa*

The PPN reconstruction, based on Tongan and Emae, corresponds well with the Fijian, where intervocalic glottal stop became *y* under as yet unspecified conditions. There are however intriguing developments within Polynesian, with **ʔ* realised as *e* in Tokelauan and *i* in Tuvaluan, and as *l* in Samoan and in Eastern Polynesian. If Ponapean *mār* '*S. puellus*' is related, the PEO may have been something like **maʔaRua*. Note also the similarity to PPN

**paʔaua* '*Siganus spinus*', and its irregular Tahitian reflex *paʔauara*. For the irregular vowel length of the Fijian reflex, see note under **ʔatule* (section 3.24).

**rō* 'juvenile *Siganus*'
PPN **rō*
ROT *rō*

The Rotuman may be a Polynesian loan (in which case this reconstruction is not valid for PCP). The PPN reconstruction is based on TON *ō* '*S. vermiculatus*', EUV *ō*, SAM *lō* '*Siganus* sp.', TOK *lōtala*, TIK *ō* '*S. rostratus, punctatus*'. Note that Tikopia shows Tongic loss of **r*.

3.54 GEMPLYLIDAE: SNAKE MACKERELS

3.55 SCOMBRIDAE: MACKERELS AND TUNAS

**ʔatu* '*Katsuwonus pelamis*, skipjack tuna'
PFJ **yatu*
PPN **ʔatu*

PSS **atu*
PMC **atu*

Rotuman *ʔatu* is a Polynesian loan.

**taku(ao)* '*Thunnus albacores*'
PPN **taku(ao)* '+ *T. alalunga*'

PMC **takuV*

**gākon(ao)* 'k.o. large tuna'
PFJ **gākona* '*Neothunnus macropterus*'
PPN **gākono* (SAM,TOK)

**tagī* 'k.o. pelagic fish' (G90)

PPN **tagī* '*Gymnosarda*'
PMC **tagiri* 'yellowfin tuna'

PAN **tagiRi* 'k.o. fish' (B72c)

There is doubt about the PPN form, as it is reflected only in Samoan and Nukuoro, and PPN **walu* '*Gymnosarda*' is well attested. Since Kiribati loses PMC **r*, a loan from the expected Kiribati form would be a likely explanation, but the attested Kiribati form is the unexpected *tani*.

**walu* 'k.o. pelagic fish'
PFJ **walu* '*Scomberomorus*'
PPN **walu* '*Gymnosarda*'

PMC (PON *weliwel* 'tuna')

**salala* '*Rastrelliger*'
PFJ **salala*
PPN **salala* (TUV)

PSS (ARE *tarara* 'k.o. fish')
PNV (URI *jelel* 'k.o. mackerel')

3.56 ISTIOPHORIDAE AND XIPHIIDAE: SWORDFISHES AND BILLFISHES

**sakula(y)a* 'swordfish, sailfish' (G90)
PFJ **sakula(y)a*
PPN **sakulā*

PMC **sakulāra* 'swordfish, marlin'
PMP **sakulayaR* 'swordfish, sailfish' (B80a)

3.57 PLEURONECTIFORMES (BOTHIDAE): FLATFISH

**(y)ali* 'flatfish'
PPN **ali* '*Bothus*, flounder'

AMB *(al)ali* 'halibut, flounder' (B76b)

Fijian *lālali* 'large flounder' may be related.

3.58 BALISTIDAE: TRIGGERFISHES

**cumu* 'Balistoidei, triggerfish'
PFJ **cumu*
PPN **sumu* 'smaller taxa', **humu* 'larger taxa, *Balistoides viridescens*, *Pseudobalistes flavimarginatus*'
ROT *sumi*

PNV (MTA *sumut* 'k.o. fish')

MTU *dumu* 'k.o. fish'
PAL *tung* 'triggerfish'

**qwau* 'large Balistoidei'
PFJ **qwau*

PSS **balubalu*
POC **baRu* 'triggerfish'

The derivation of PFJ **q(w)* from POC **b* is not entirely regular, but paralleled in, for example, *qō* 'pig' < **boRo* 'domesticated pig', and cf. PNV **tibwa* 'short blunt arrow', PFJ **i-tiqa* 'short blunt spear thrown in game'.

**li(ʔ)oli(ʔ)o* 'large Balistoidei'
PFJ **liolio* '*Pseudobalistes flavimarginatus*'
ROT *liolio* '*Balistoides viridescens*'

PMC **liolio* 'k.o. triggerfish' (PON, MOK *lioli*; KIR *nuonuo* '*Balistes fuscus*')

3.59 MONACANTHIDAE: FILEFISHES

3.60 OSTRACIONTIDAE: TRUNKFISHES

**qwaoqwao* '*Ostracion*'
PFJ **qwāqwā*
ROT *kaokao*

The vowel correspondence is regular (Geraghty & Pawley 1981).

**moa(moa)* '*Ostracion*'
PFJ **moamoa*
PPN **moa(moa)*
ROT *moa*

The Rotuman may be a Polynesian loan, though all the usual Polynesian donor languages show a reduplicated form *moamoa* (TON *mōmoa*). There is a possibility of parallel development, an outstanding characteristic of this fish being its resemblance in taste and texture to chicken, PCP **moa* or **toa* (cf. next).

**toa* '*Ostracion*'
PFJ **toa*

PSO **to*

3.61 TETRAODONTIDAE: PUFFERS

**jexejexe* '*Arothron*' (G86)
PFJ **sekeseke*
PPN **teʔeteʔe*

**sumusumu* '*Arothron*'
PFJ **sumusumu*
PPN **musumusu* (EUV)

The likelihood of borrowing is remote, both because of the metathesis, and because Fijian *sumusumu* is not found in parts of Fiji bordering on Polynesia. PCP **sumusumu* is reconstructed rather than **musumusu* because of the possible association with PPN **kisumu* 'rat', Arothronidae being frequently associated with rats because of their facial appearance.

3.62 DIODONTIDAE: PORCUPINE FISHES

**tautu* '*Diodon* sp.'
PFJ **tautu*
PPN **tautu*
ROT *faufu*

PNV **ta(r)utu* (URI *daut*)
PEO **taRutu* (G90)

In the South-East Solomons, Lau *au* shows the loss of **R* before high vowels discussed in Geraghty (1990:84).

3.63 CETACEANS

**tavura?a* 'whale'
PFJ *(*tavuto)*
PPN **taf(ou)ra?a*

PNV **tav(iu)ra?a*

3.64 CEPHALOPODS

**kuita* 'octopus'
PFJ **kuita*

PNV **kuRita* 'squid'
PMC **kuita*

**veke* 'octopus'
PPN **feke*
ROT *he?e*

The replacement of **kuita* by **veke* is a shared innovation of Rotuman and Polynesian.

**nū* 'squid'
PFJ **kuita/nū*
PPN **gū/feke*
ROT *nū*

PMC **nu(cs)o*
PSS **nuco*

CHM *nosnos, nosngos*

3.65 INDETERMINATE

**bakewa* 'k.o. fish that accompanies sharks'
PFJ **bākewa* '*Echeneis*'
PPN **pakewa* '*Carangoides ferdau*'

PMC **pakewa* 'shark'
PSS **baxewa* 'shark'
PNV **bake(ao)* 'shark'

The PPN reconstruction does not specifically refer to *Naucrates ductor*, the pilot fish, but they belong to the same family. For the irregular length in the Fijian reflex, see under **?atule* (section 3.24).

**qio* 'k.o. large fish'
PFJ **qiō*, **qeo* 'shark'

PNV **qio* 'whale, dolphin'
PSS **kirio* 'porpoise'
PMC **kua* 'porpoise'

**drava* 'k.o. small freshwater fish'
PFJ **drava* '*Kuhlia*'
PPN **(rl)afa* (SAM *lafa* '*Ambassis*')

**(bp)uma* 'k.o. larger schooling inshore fish'
PFJ **bima* 'medium-sized *Mugil* spp.'

PSS **buma* '*Selar*'

**vo(ʔ)o* 'k.o. small fish'
PFJ **vō* 'Eleotridae'
PPN **fo(ʔ)o*

The PPN reconstruction is based on SAM *fō* '*Apogon*', PUK *wō* 'k.o. herring-like fish', LUA *hō* 'k.o. small fish', SIK *hō* 'k.o. fish', TAK *fō* 'k.o. small fish'.

**reve* 'k.o. small fish'
PFJ **reve* '*Mesopristes kneri*'
PPN **(lr)efe*

The PPN reconstruction is based on TAH *rehe* 'k.o. fish' and MAO *rehe* 'greyling'.

**(cs)(iu)gar(ei)* 'k.o. small reef fish'
PPN **sugale* 'Labridae spp.'

PMC **sigari* '*Gnathodentex*'

**vua-* 'juvenile (fish)'
PFJ **vuavua-* 'juvenile (Epinephelidae)'
PPN **fua(fua)* 'juvenile *Mugil*'

APPENDIX: ABBREVIATIONS OF LANGUAGE NAMES

AMB	Ambon	LAU	Lau
ARE	'Are'are	LEN	Lenakel
ARO	Arosi	LGU	Longgu
AUA	Aua	LUA	Luangiua
BRE	Bauro East	MAE	Emae
BRW	Bauro West	MAN	Manam
CAR	Saipan Carolinian	MAO	New Zealand Maori
CHM	Chamorro	MIA	Mangaia
EAS	Easter Island (Rapanui)	MOK	Mokilese
EFU	East Futunan	MQN	North Marquesan
EP	Eastern Polynesian	MQS	South Marquesan
EUV	East Uvean	MRS	Marshallese
GIT	Gitua	MTA	Mota
HAW	Hawaiian	MTU	Motu
ILK	Ilokano	MVA	Mangarevan
KAP	Kapingamarangi	NIU	Niuean
KIR	Kiribati	NP	Nuclear Polynesian
KOS	Kosraean	NTP	Niuatoputapu
LAK	Lakalai	NUK	Nukuoro

PAL	Palauan
PAN	Proto Austronesian
PEO	Proto Eastern Oceanic
PEP	Proto Eastern Polynesian
PFJ	Proto Fijian
PMC	Proto Micronesian
PMP	Proto Malayo-Polynesian
PN	Polynesian
PNP	Proto Nuclear Polynesian
PNV	Proto North Vanuatu
POC	Proto Oceanic
PON	Ponapean
PPN	Proto Polynesian
PPT	Proto Papuan Tip
PSO	Proto Southern Oceanic
PSS	Proto South-East Solomonic
PSV	Proto South Vanuatu
PTK	Proto Trukic
PUK	Pukapuka
PUL	Puluwatese
PWMP	Proto Western Malayo-Polynesian
RAP	Rapa
RAR	Rarotongan
REN	Rennellese
RIM	Rimatara
ROT	Rotuman
ROV	Roviana
SAA	Sa'a
SAM	Samoan
SAT	Satawalese
SEI	Seimat
SIK	Sikaiana
STA	Santa Ana
STC	Santa Catalina
TAH	Tahitian
TAK	Takū
TIK	Tikopia
TMB	To'ambaita
TOK	Tokelauan
TON	Tongan
TRK	Trukese
TUA	Tuamotu
TUV	Tuvaluan
ULI	Ulithian
ULW	Ulawa
URI	Uripiv
WOL	Woleaian

ARCHAEOLOGICAL PROBLEMS WITH THE USE OF LINGUISTIC EVIDENCE IN THE RECONSTRUCTION OF RANK, STATUS AND SOCIAL ORGANISATION IN ANCESTRAL POLYNESIAN SOCIETY

R.C. GREEN

1. INTRODUCTION[1]

Two recent books by archaeologists in Europe exemplify a renewed interest in the long-standing problems of how to address the intersection of historical linguistics and archaeology. Their focus is on Indo-European, fundamentally a linguistic concept, but the methodological problems are more general and some of the issues raised could equally apply to Austronesian or Oceanic languages and archaeology in the Pacific. One book is Colin Renfrew's *Archaeology and language: the puzzle of Indo-European origins* (1987) and the other is J.P. Mallory's *In search of the Indo-Europeans: language, archaeology and myth* (1989). No two books could be more different, despite dealing with the same general problem. Renfrew's book was intended to be critical of much that had gone before, and in offering a new 'solution', controversial. Both linguists (Greenberg 1988:1029; Baldi 1988:447) and archaeologists (Gimbutas 1988; Lamberg-Karlovsky 1988) have condemned and dismissed it as unsound.

As Mallory (1989:8) indicates, Renfrew's "latest work is very much a challenge to the conventional wisdom"; in contrast, Mallory regards his own work "to be in the general mainstream of this 'conventional wisdom'". That is how I too would judge these two offerings. Nevertheless, I have great sympathy with Renfrew (1987:3) when he states "this book sets out to argue...that archaeologists have, with a few notable exceptions, failed in recent years to take adequate account of the linguistic evidence in building up a picture of the past". My view is that archaeologists ought to take full account of such evidence. It explains my endeavours in this field and my presence among what is largely a gathering of those interested in the results of Austronesian historical linguistics. I can assure you, however, that my view is quite the opposite of many (I would say a majority) of Pacific archaeologists who regret that linguistic concerns have become a part of the equation in the reconstruction of the culture history of the area. As Renfrew (1987:5) observes "linguistic archaeology earned itself a bad name, then, from some of the writings of the 1920s and 1930s". In the view of archaeologists in the Pacific this situation continues, because of its conventional practice by a very few archaeologists such as Peter Bellwood, Matthew Spriggs and myself (cf. Terrell 1986:42-64, 247-256; Kennedy 1990).

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1 Additions or corrections to this paper have been suggested by symposium colleagues, members of several seminars in which it was given and Valerie Green. Thanks go to Dorothy Brown for help in preliminary editing and word-processing.

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Pacific Linguistics, C-127, 1994.

Linguists too have sometimes commented on the current situation and a return to the "position that prehistoric linguistic construction should not be related to archaeological findings" (Lehmann 1987:72), a view perhaps held more strongly in the USA than elsewhere (Diebold 1987:61) but certainly not unknown in the Pacific (Welsch et al. 1992). Diebold (1987:19-20) in his overview of the potential of linguistics to contribute to prehistory puts the matter fairly succinctly:

> Unlike the more cordial interdependence which has long characterized the relations between classical philology and classical-historical archaeology, there exists a chronic alienation between prehistorically (especially anthropologically) oriented archaeology and those historical comparative linguistic ventures that are concerned with (P)IE prehistory. My claim is actually a masterpiece of meiosis, for experience suggests that 'mutual contempt' more accurately depicts the climate.

One reason for the lack of useful dialogue he believes "is that neither is well acquainted with the theoretical and methodological arsenal deployed but not revealed by the other" (Diebold 1987:21). This sentiment too finds direct echoes in statements of a Pacific linguist on the same theme "that if we want to use the other fellow's last we had better know exactly what it is good for" (Biggs 1972:143; see also Spoehr 1968:143). My concern, then, is to demonstrate that archaeologists who do attempt to control the technical arsenal of historical linguistics may yet turn out syntheses in Oceania prehistory informed by the results of both disciplines.

This paper is ultimately concerned with rank, status, social organisation, stratification, and segmentation as it may be reflected in Ancestral Polynesian Society (APS) both linguistically and archaeologically. As the following quote from Renfrew indicates, such problems are now of common concern to archaeologists and they sometimes draw on linguistic evidence as support for their views. Kirch's (1984:53-67) reconstruction of APS serves as an Oceanic example. That archaeologists can successfully deal with such matters when they have the right evidence is obvious from the settlement pattern study of the inland 'Opunohu Valley in Mo'orea, French Polynesia (Green et al. 1967; Descantes 1990), or Kawela on the island of Moloka'i in Hawaii (Weisler & Kirch 1985). Thus, as Renfrew (1987:5) says:

> Archaeology has moved on from its preoccupation with races, ethnic groups and prehistoric migrations. It has learnt to speak with greater authority and accuracy about the ecology of past societies, their technology, their economic basis and their social organization. Now it is beginning to interest itself in the ideology of early communities: their religions, the way they expressed rank, status and group identity. The question of language is important here, and we can approach it anew; abandoning some of the old preconceptions.

2. THE QUESTION OF MEANING

What are the archaeological objections to the use of linguistic evidence in historical reconstructions by archaeologists? Largely they seem to revolve around the meaning linguists assign to various reconstructed lexical forms or etymon. This quote from Renfrew (1987:260) is typical:

> It is difficult, therefore, to learn a great deal through the methods of vocabulary analysis about the social institutions of those groups speaking an early form of Indo-European before this differentiated into different language families. Our problem is not simply one of vocabulary change, it is also one of changes of meaning. Yet it must be admitted that looking through pages of Benveniste's major work one does indeed find a rich vocabulary of words which undoubtedly have common roots.

One could substitute Austronesian, Oceanic, or Polynesian for Indo-European, and linguists such as Blust, Pawley or Biggs for Benveniste and one would have a typical Pacific archaeological viewpoint. The same applies to the following quote (Renfrew 1987:18):

> In my view, however, there should be a fundamental re-examination of the foundations of this theory. One important question is the extent to which it is legitimate to reconstruct a Proto-Indo-European language, drawing upon the cognate forms of the words in the various Indo-European languages that are known. Certainly it is questionable whether the nouns (for linguistic palaeontologists make little use of verbs or adjectives) can legitimately be used in the way advocated by Pictet and by Schrader to create an inventory, as it were, of the *Urheimat*, the original homeland of these Proto-Indo-Europeans.

Put more bluntly, as Renfrew (1987:86) does, "the methods of comparative linguistics have much to offer in the study of these processes, but the construction of a protolexicon may not be their most useful contribution". He (1987:77) refers to the "lure of the protolexicon" and then, in the pages that follow, he disparages the utility of "the method of linguistic palaeontology, as it was grandiosely termed". Mallory (1989:275) effectively deals in one footnote with Renfrew's two main claims (later borrowings, changes in meaning) against the historical linguists' ability to reconstruct a protolexicon, and more particularly the meanings to be associated with each of the various etyma. His view is that Renfrew's discussion fails to "discredit the entire method". Rather there are well-known problems which have been greatly overstated and "historical linguists are not really so hopelessly lost as Renfrew's discussion seems to portray them" (Mallory 1989:275). Diebold (1987) presents a theoretical and methodologically more reasoned discussion of what kinds of prehistory have proved possible using linguistic evidence.

However, to show that Renfrew's views are not really all that atypical, and raise issues entirely germane to the APS problem under consideration here, I extract a long quote from Sutton (1990:668):

> Recently, lexical reconstructions have been used – I believe wrongly – by Kirch (1984:62-69), to support the notion that 'Ancestral Polynesian Society had already developed the institution of hereditary chieftainship' which was taken to islands throughout Polynesia where it underwent evolutionary change, although only at the sub-specific level...
>
> It is clear that chiefdoms varied fundamentally between societies, and that they changed rapidly within particular societies. Therefore, the assumption that the existence of particular lexical items in a protolanguage is sufficient indication of the political system which operated during the use of that language is seriously flawed. Dyen and Aberle put the same points with regard to kinship, when they argue that 'A kinship system can be regarded as composed of two correlated

> systems: a system of kinship terminology and a system of behaviors that are patterned in relation to the terminological system. We know of no way in which we can rigorously infer the kind of behavior directly, but it is generally regarded as possible to reconstruct the terminology in large part' (1974:7).
>
> Kirch's (1984) error in dealing with the lexical material has been to assume that the status or kin categories identified in lexical reconstructions have operationally specific meanings. More correctly, the reconstructions are particularly valuable because they define the principles of sociopolitical differentiation which are embedded in the Proto-Polynesian and Proto-Oceanic languages. These express the axes around which transformation could and did occur within descendant societies. Those axes are descent, filiation, age, gender and achievement (Pawley 1982). Their number and the fact that they affect all aspects of social and cultural life help explain the rapidity with which sociocultural change occurred in Polynesian societies, both prior to and following European contact. Green's (1986) use of reconstructed Proto-Polynesian lexicons in his 'triangulation strategy' for the reconstruction of 'Ancestral Polynesian structural categories and social and material manifestations' is also based on the incorrect assumption that protolexemes have specific, operationally meaningful connotations. Paradoxically, Green (1986:50) refers to the Dyen and Aberle (1974) study cited above as the basis of his view that 'only in historical linguistics, with its explicit comparative theoretical framework based on the well-established principle of the regularity of sound change, has historical reconstruction continued without serious challenge'.
>
> In practice, however, chief (*'ariki in Proto-Polynesian; derived from *qa-lapa and *qa-diki [Pawley 1982] or *qa-adiki in Proto-Oceanic [Lichtenberk 1986] will mean different things in different social and cultural contexts. This point applies to most of the Proto-Polynesian reconstructions relating to kin terms, social statuses and social groups listed by Kirch (1984, Table 6) and to Green's (1986:52) characterisation of Ancestral Polynesian Society as 'some form of incipient chiefdom from its initial stages'.

While Sutton, by drawing on the somewhat out of context quotation above, tends to imply that I saw no difficulty with either the reconstruction of the etymon or its meaning, that is not what was actually written. Rather in that article, I too, as an archaeologist, found the greatest difficulty to be the meaning "glosses" which are assigned to lexical items by many historical linguists, as evidenced by the following quotation (Green 1986b:51):

> The second approach has only recently been applied in Oceania. It is based on reconstructions of the lexicons of proto-languages using the comparative method of historical linguistics. For Proto-Polynesian the lexicon now numbers around 3000 items, for Proto-Oceanic nearly 2000. In this strategy the reconstruction of the proto-forms is more certain than their presumed semantic meanings. Regularity of sound change and rules for the same, combined with a subgrouping hypothesis, yield relatively secure phonemic shapes for the reconstruction obtainable from a given cognate set. However, unless the meanings in the set are highly uniform, some kind of what Dyen (ms.) calls a "semantic history hypothesis" has to be formulated to identify the original content of the semantic category and account for the range of meanings that has

> subsequently developed in each of the daughter languages (cf. Dyen and Aberle 1974:15-22 for some formal procedural methods). In the Polynesian and Oceanic subgroups of Austronesian, the establishment of the lexical forms for the proto-language has been fairly well advanced by Biggs (1979, with subsequent additions) and by Grace (1969), Blust (1972a,b), Lincoln (1979), and others. However, sophisticated semantic history hypothesis identifying the original meanings of many of the terms are lacking. Rather, the items judged to be cognate are identified only by very loose or general meaning glosses. Still, for Oceania, following some isolated studies of specific areas like kinship, Pawley (1982a,b, in press), his students, and some others (Clark 1982) have begun to explore this problem for a number of discrete linguistic domains such as terms for people, for fish, for gardening, or for birds.

Like Sutton, another archaeologist (Dye 1987:445-446) in commenting on an article by Kirch and Green, writes:

> A similar note of caution should be voiced over the weight placed on semantic values assigned to reconstructed lexical forms in characterizing "ancestral Polynesian society." The *Wörter und Sachen* method works best where the denotata of reconstructed lexical forms are material objects and becomes intractable when the "thing" referred to is a social relation structured by a complex of inter-dependent rights and duties. A case in point is the claim, based on linguistic data that have since been questioned (Lichtenberk 1986), that the institution of hereditary chief was part of "ancestral Polynesian society". The term **'ariki* is securely reconstructed for Proto-Polynesian, but the semantic value assigned it is modeled on the rights, duties, and modes of succession associated with chiefs of contact-era societies in full land situations. Since sociopolitical power in contact-era Polynesia was rooted in some degree of control over access to land, could the rights and duties of an **'ariki* in a "propagule" of fewer than 100 persons on an island covered with virgin forest have been comparable to those of a contact-era chief? This is an important issue in Polynesian prehistory, and the authors should be commended for attacking it with synchronic linguistic data. Diachronic archaeological data will contribute to an understanding of social and political change in prehistoric Polynesia when investigations focus on the material preconditions for establishing specific sets of social relations...

The issue then is reasonably clearly delineated. Archaeologists might just be able to use linguistic protolexicons as evidence in their cultural historical reconstructions of the past, if they limit themselves to environments, plants, animals, tools and other material objects, though Renfrew would even deny them that. But when it comes to their use in reconstructing "ancestral Polynesian society", then the project becomes intractable if not misleading, at least in the opinion of a great many archaeologists. One objective here is to explore how well founded is this viewpoint.

3. THE VIEWS OF DYEN AND BLUST ON PROCEDURES FOR MEANING RECONSTRUCTION

Debate on how to reconstruct meaning is not confined to archaeologists. Linguists too are not entirely agreed as to how one should proceed when assigning definitions to the etyma in lexical or semantic reconstruction. On this subject I have found the discussions of these matters by both Dyen (n.d.) and Blust (1987a) instructive. (Note, however, that Blust draws upon Dyen and Aberle (1974) for his description of their methodology, not the unpublished commentary of Dyen (n.d.) which concerns procedures adopted in a previous paper by Blust (1980b).) As Diebold (1987:35) indicates "reconstruction of early historical – or proto – meanings demands as much care as the reconstruction of proto-form".

For the purpose of discussion Blust (1987a:81) adopts the distinction between *lexical reconstruction* and *semantic reconstruction* – "two terms that otherwise appear to be used interchangeably in the literature of historical linguistics". Here he may well be right with respect to current practice in the Pacific, but as is indicated below, the distinction is an old one in historical linguistics attached to some rather forbiding terminology little used anymore in English-language writings (Diebold 1987:35, fn.13). Lexical reconstruction, following the procedures set out by Dyen (n.d.) or Dyen and Aberle (1974), asks the question: what was the proto-morpheme which probably meant 'X'? So far as one can tell Dyen regards such techniques of lexical reconstruction as not only providing a more rigorous and replicable methodology, but also one that employs a more formalised and conservative treatment than any used in the more usual semantic reconstructions. The latter to Dyen (n.d.) too often result in propositions that are non-general and intuitive, and while often plausible, do not satisfactorily distinguish between a suggested hypothesis which is possible and some other that may be as likely or even more probable.

In Dyen and Aberle's (1974:7) view then, the object of lexical reconstruction is to determine which proto-morpheme sequence had a particular meaning. One starts with the proposition that a language had a word with a particular meaning, and asks which of its reconstructable morpheme sequences most likely displayed that meaning. Thus as Blust comments "lexical reconstruction is not concerned with the reconstruction of semantic categories at all. Rather, it is concerned with the association of a reconstructed morpheme with a predetermined category of meaning" (Blust 1987a:84), "defined outside the system of the reconstructed language" (Blust 1987a:88). The German and other Indo-Europeanists called this an onomasiological query (Diebold 1987:fn.13).

Semantic reconstruction in contrast asks the question: what was the probable meaning of proto-morpheme 'X'? It operates by establishing contrast within semantic fields. One has signification referring to semantic correspondence and value referring to the embedding of a semantic category within a larger semantic field. Thus "signification defines meaning through a reference point that is outside the system of a language, while value defines meaning through systemic coherence" (Blust 1987a:88). In Indo-European this went under the heading of a semasiology approach (Diebold 1987:fn.13). The procedures of Dyen and Aberle are concerned only with the signification of a reconstructed system; they do not deal with the value of a reconstructed morpheme by attempting to infer its meaning in relation to other terms within a coexistent system.

Dyen (n.d.), in his discussion of Blust's earlier work, introduces the term "prime semantic agreement" (PSA) where the basis "for assigning a meaning to an etymon [is] that a sameness of meaning appears between cognates belonging to members of different sub-

groups". On the other hand, where things are more messy (as is typical) and there are differences in meaning, he refers to what many historical linguists do as "constructing a 'semantic history hypothesis'" (SHH). This is the process whereby linguists assign to an etymon a meaning or gloss which can be reasonably regarded as having given rise to the different meanings found in the associated cognates where the several meanings were judged to cover the same general semantic field. When reading Dyen's commentary, it was the "semantic history hypothesis" approach for which, as an archaeologist, I opted, despite Dyen's misgivings about its lack of real rigour in determining cognation, its inherent inaccuracy and a degree of circularity. After reading Blust's (1987a) discussion, and his example working out the terms for 'house', I am better able to see why it is this approach to meaning which most archaeologists will probably prefer. This method is more likely to provide the kind of *former* meanings and subsequent changes in them which archaeologists would be inclined to explore using their own data, rather than the limited, rather stark and still currently preserved sameness of meaning resulting from the Dyen-Aberle approach. As Diebold (1987:56) says, using emphasis: "**I cannot stress enough the need for a strong diachronic semasiology**. If such comes to be developed, we are going to have to revise much of the semantic information contained in our etymological canon".

4. CAN ARCHAEOLOGY CONTRIBUTE TO THE PROBLEM?

Most archaeologists (and perhaps many linguists) don't seem to appreciate what is required to address the intersection between historical linguistic reconstructions of protolexicons and their archaeological data. I will set out my views by using Proto Central Pacific (PCP) and Proto Polynesian (PPN) as examples. One has first to specify in tightly formulated arguments the time and place of the intersection of the two data sets.

In Indo-European such correlations have so far not proved easy, nor are the solutions uncontroversial. But as Mallory (1989:143-261) shows, careful scholarship in both fields can establish a result that is generally convincing if still to be confirmed in one instance by archaeological evidence of a demonstrable historical relationship in the expansion from the Pontic area into Central and Northern Europe. The result is certainly more plausible than anything put forward by Renfrew where the current historical linguistic evidence remains incompatible with his archaeological model. One might say something similar for Austronesian or Oceanic. Bellwood (1985,1991) and Spriggs (1989) have put forward plausible accounts for the intersection of linguistic reconstructions and the archaeological evidence for Austronesian in Island Southeast Asia and its expansion into Oceania, but these have yet to be confirmed by archaeological demonstrations acceptable to a majority of scholars. However, when one comes to the simpler and nearer-in-time case of Remote Oceanic, and especially CP and PN, even the more severe critics like Terrell (1989) and Kennedy (1990) tend to accept the equations proposed as to time and place. The expansion of Oceanic languages into Remote Oceania began circa 3,300 years ago and correlate with the Lapita cultural complex (Pawley & Green 1984; Spriggs 1984; Green 1992) and Proto Eastern Oceanic. A method for advancing these correlations was set out by Pawley and Green (1973) and the Central Pacific/Polynesian homeland part of the equation further examined in detail by Green (1981). Thus a time depth of 3,200 to 2,800 years ago correlating PCP with early Eastern Lapita assemblages would be acceptable to most scholars, with the area encompassing the Fiji-West Polynesian region as its homeland on the archaeological evidence. By 2,400 to 2,000 years ago a correlation can be established

between PPN and culturally West Polynesian assemblages of an early type that exclude the Fijian area. By the end of that time, or more likely after a short pause, expansion began into central Eastern Polynesia.

5. HISTORICAL LINGUISTICS AND THE PHYSICAL CONTENT OF ANCESTRAL POLYNESIAN SOCIETY

Once the historical and locational intersections of the two sets of data are established, the other correlation, of course, is that of content. What strikes one immediately is the large size of the protolexicon (upwards of 3,800 items) and the limited amount of it which has potential for reflection archaeologically. Some (Pawley & Green, K. 1971; Green 1975, Table 1) have looked at environmental terms as well as a range of other domains. I have had students do exercises with material culture; other exercises have or could be done with the fish, plants or animals. Kirch (1984, Table 4) gives a typically short list of 35 items of technology and production for most of which one could argue for potential or known confirmation in the archaeological assemblages of appropriate date and age. Yet, with the best will in the world, I doubt one could produce an archaeologically well confirmed list more than 300 to 400 items long (10%). Nevertheless, a systematic exercise of this sort for PCP and PPN against the environment of Fiji-West Polynesian region and Eastern Lapita/Early Polynesian assemblages of fauna, flora, cultural features and portable artefacts would go a long way towards strengthening the proposed intersection of the historical linguistic and archaeological information.

Would these enhance and make more behaviourally operational the meanings assigned to various items in the protolexicon? I think they would. We would not just have lists of the fish (Kirch 1984, Table 5), or shellfish, or birds (Clark 1982), or plants, but indications of how they were exploited, and some better idea of what the verb 'to fish' (PPN **faangota*) in this context actually meant (Clark 1991a), for as Clark shows, there was a repeated shift in the meaning of the word in Remote Oceania. Moreover, just what was in the cognised environment and given more specific names as fish, *ika*, and what was in the utilised environment and fished for often differs markedly. This has been brought out for Lapita contexts by Walter (1989) for the fish caught (archaeologically) and those reconstructable linguistically, while Hooper (this volume) clearly demonstrates how the economically useful fish are well marked in the Polynesian naming of certain fish species. Nonetheless, the precision or accuracy of the reconstructed meaning for each etymon at a particular time and place would vary greatly, making both sources of data useful in any full reconstruction.

Take, for example, PPN for **talo* – *Colocasia esculenta*, in the semantic field of giant taro, *Alocasia macrorrhiza* – **kape*, and related plants like giant swamp taro, *Cyrtosperma chamissonis* – *pulaka*, and Hong Kong or American taro – *Xanthosoma* spp. One can be fairly sure the proto-morpheme has the single meaning of 28 chromosome *Colocasia* and not some other of the related plants above. Thus Hong Kong taro is a modern borrowing in the region, **pwulaka* seems to have been borrowed from Micronesia into Polynesia (Geraghty 1990:57,89) and 28 chromosome *Colocasia* is the domesticated ancestral type for Oceania (Matthews 1990). One can also claim that **talo* falls into the category of a lexeme that exhibits an unchanging prime semantic agreement through all stages from PCP to PPN and down through other proto-languages to the various daughter languages. The strongest evidence of its presence in Ancestral Polynesian Society is from historical linguists and that will probably always remain the case. In addition, there is the possibility of identifying

appropriate starch grains as residues on early Polynesian tools ethnographically known to have been used in processing taro (cf. Loy et al. 1992). Rarely, swamps may yield pollen or parts of taro plants, or there may be contexts in which plant remains were carbonised enabling us to find fragmentary remains of the plant of appropriate date and location. Even alluvial-covered taro gardens of the right age, such as those with their planting holes known from Futuna at 900 AD, are possible (Frimigacci et al. 1988:14). But all of this will only add support to the evidence of historical linguistics for PPN **talo* as meaning only *Colocasia esculenta* in association with a coexistent system of related (*Alocasia*) and non-related plants (various yams, breadfruit, several bananas) and PPN lexemes meaning to plant, to harvest, and a garden.

Another example, PPN **toki* 'adze', suggests how archaeology might add to an understanding of what this term indicated, as well as document change, in what is again a proto-morpheme exhibiting a fairly stable prime semantic agreement through all stages from PPN down through other proto-languages to the daughter languages. Interestingly the reconstruction for PCP is **kia* (Geraghty 1990:62) from PEO **kiRa* and before that in POC it was **kiRam* 'adze/axe'. The last gloss is one indication of how archaeologists would expand the usual PPN linguistically assigned meaning, adze, as it is technically known in English, to also cover (in all POC languages) axes and chisels as part of the semantic category. This would be firstly on the grounds that there are no contrasting lexemes with the meaning 'axe' and 'chisel' to cover these *values* in PPN, PCP, PEO or other POC languages. It would also be on the archaeological grounds that the appropriate assemblages of 'adzeheads', while they were functionally hafted and employed dominantly as adzes in Polynesia, also functioned at times as axes and chisels. Finally because the Lapita adze kit included two kinds of axe/adzes in shell along with those in stone (Green 1991a) and because in Pohnpei, for example, *ki* still means 'shell adze' (Geraghty 1990:62), it is probable the meaning of **kia* (and then **toki*) always covered axe/adzes in shell as well as those in stone.

The intersection with archaeology might also indicate a physical form for the linguistically reconstructed meanings and begin to give them a more behaviourally operational content. They would be stone or shell adzes, axes and chisels of a certain type but not necessarily stone celts or steel tools. Eastern Oceanic **kiRa*, for example, would as indicated above, initially link with a set of stone and shell adze/axe types firmly associated with the Lapita cultural complex from that area. A change to PPN **toki* accompanies a set of morphological changes resulting in an ancestral Polynesian adze/axe kit (Green 1971) and at later stages *toki* in its various forms refers to still other kinds of adzes, axes and chisels typical of the different daughter languages. Moreover, inferences as to the behaviour that went into their production and use, and changes in these through time may be reconstructed through archaeology and combined with linguistic terms for such processes. Unlike **talo*, what PEO **kiRa* and PPN, PNP and PCE **toki* meant changed through time, and archaeology, perhaps more than historical linguistics, may help to identify these shifts in referents through the construction of plausible semantic history hypotheses incorporating both sets of data.

6. HISTORICAL LINGUISTICS AND SOCIAL ASPECTS OF ANCESTRAL POLYNESIAN SOCIETY

At this point we are at last in a position to tackle what some consider an almost intractable problem, reconstructions of those aspects of Ancestral Polynesian Society which Kirch (1984:62-67) describes under the heading *social relations*. Currently, as he notes, "the

archeological evidence of Ancestral Polynesian settlement patterns tells us relatively little of the nature of social groups per se" (p.62); moreover, "artifactual evidence for social status is similarly lacking" (p.63). Thus it is the linguistic evidence on which he relies to a very large degree. As was shown in the lengthy comments by Sutton and Dye (section 2), two main criticisms appear to arise among archaeologists about the use of such evidence. Sutton claims flaws in the assumption that a set of lexical reconstructions with their meanings is sufficient to identify the kind of sociopolitical system involved much less give assigned meanings any sense of operational definition. Dye is concerned with this problem, but also wonders the degree to which the rights and duties of PPN **qariki* (and by implication other associated social statuses) would differ in a small colonising group. In short what kind of chiefdom would a PPN one be, if indeed it was a chiefdom.

Green too (1993) has looked at this problem in a recent review, one part of which surveys the development of sociopolitical complexity in Polynesia. As Earle (1987:288) observes, many of the societies used in a survey of sedentary prestate societies in the Americas have been called chiefdoms because of their hereditary ranking. Yet their small population sizes, often well below a thousand, would perhaps require them to be considered not as simple chiefdoms, but as 'tribal' variants on a local group level. Green cites Anuta as an ethnographic example, where less than 200 people occupying an island 0.4 km^2 in size all lived in one coastal village. It had two *ariki* (chiefs), who headed up two of the four *kainanga* (patrilineal units), the other two having only appointed formal leaders (Feinberg 1981:134-192). The question that arises is: is this a chiefdom or is it something else?

From the daughter languages it is evident that the terms for concepts of hereditary ranking were retained and distributed throughout Polynesian societies. Thus, while they can be reconstructed linguistically and assigned to an Ancestral Polynesian society, one needs to question whether these small colonising populations using these terms should be considered local-group variants possessing terms and personages reflecting nothing more than hereditary ranking. Or are they, as I think, some form of incipient chiefdom which in time gave rise to the various and more characteristic types of simple and complex chiefdoms recorded at the time of contact.

First let us review the linguistic evidence used by Kirch (1984). His Table 6 summarises most of the better known items:

[**Table 6.** *Proto-Polynesian lexical reconstructions relating to social organization and ritual*]

Gloss	**Proto-Polynesian-reconstructions**
Sibling kin terms	
Elder sibling, same sex	**tuakana*
Younger sibling, same sex	**t(a,e)hina*
Woman's brother	**tuanga'ane*
Man's sister	**tuafafine*
Social statuses	
Chief	**'ariki*
Expert, craftsman, specialist	**tufunga*
Warrior	**toa*
Seaman, navigator	**tautai*

Social groups	
Corporate, land-holding descent group	**kainanga*
Minimal descent group, household (with land)	**kainga*
Assembly of people	**fono*
Gods, ritual, religion	
Sacred, prohibited	**tapu*
Supernatural power	**mana*
Deity	**'atua*
Spirit, soul, corpse	**'anga'nga*
Piper methysticum; ceremony	**kawa*
To perform ritual	**fa'i*
Offering, act of worship, remove tapu	**mori*
Prayer	**lotu*
Kava bowl	**taano'a*
Pigment of *Curcuma domestica*	**renga*

All these lexical reconstructions and the meanings cannot be discussed here. However, sufficient interest focuses on the PPN term **qariki* to make its further discussion worthwhile. POC **qa-adiki* as a proper noun, in PPN became a common noun occurring after the definite and indefinite articles, designating a class of objects rather than a previously more descriptive personal title (son of big man? or chief?). Thus Pawley (1982:41) puts forward the semantic history hypothesis that there was a shift in the PEO meaning such that PPN **qariki* became a common noun designating "a class of people or member of that class". Yet this must have been at an earlier stage than PPN for the meaning 'chief' would certainly qualify as one deriving from a prime semantic agreement within the daughter languages of Polynesian. Koskinen's (1960) extensive comparisons of meanings assigned to this category would certainly support that interpretation, but he picked up enough in the Polynesian variations on meanings of the term to anticipate Pawley and also note its original meaning as 'first born of the chief' and as such one who was involved with sacred duties. This might have been its PCP and Eastern Lapita meaning, which then changed in Ancestral Polynesian Society as Pawley has indicated.

No one has mentioned a contrasting lexical reconstruction for 'chief' or 'chiefly'. However, in searching for other items that might imply rank or status, I noted another possible meaning that might be assigned to the usual PPN **langi* meaning 'sky'. The evidence for this is:

TON *langi*	honour, glory, splendour; a burial place for the highest chiefs
HAW *lani*	noble, royal, exalted, highborn aristocrat, to treat as chief
RAR *rangi*	supreme in authority, highest authority power, highest chief
MAO *rarangi*	line, rank, row (from *langi* – 'chief')

From this one could construct a semantic history hypothesis that in PPN while **qariki* was only just then taking on the meaning of a category designating a hereditary class of people called chief, from its previous meaning of 'the son of a hereditary leader', there was another term PPN **langi* meaning 'one who was of sufficiently high rank to be honoured or treated as one in authority'. This could be supported by another term reconstructed by Pawley (1975a), PCP and PPN **sau* 'to rule, have supreme command over a group of people; ruler, high chief'.

The comparison here is with PPN **papa*, usually assigned the meaning 'flat, hard surface', but always in myth and ideology contrasted with **langi*. For PNP, at least, one might also attempt to reconstruct another semantic meaning for it on the following information:

HAW *papa*	class, rank, grade, to put in rank in layers, file
RAR *papa*	sequence, order of succession (like a line of ancestry)
SAM *papa*	high titles and dignities
MAO *papa*	layer or course (*whakapapa* 'place in layers, recite in order as in line of ancestry')

Further searching is required, but perhaps under a SHH one might develop a claim that **papa* also meant 'to order things in succession, especially people'.

In a class considering comparative Polynesian data Judith Huntsman discussed various Polynesian terms for position or office, authority, power (both supernatural and in the sense of strength) and position (whether of *status* i.e. a role's position on a scale of worthiness, or of *rank* i.e. one's position or level within a status). This interested me enough to see what *PPN terms were available. For authority PPN **pule* might qualify, but if so a SHH is required to explain the shift in meaning to 'prayer' in Eastern Polynesia. Pawley (1975a) glosses it as 'to be in a position of authority or to appeal to authority' (from which 'to pray' derives).

For position PPN **tuquranga* would seem to qualify with the anthropological distinction between rank and status not easy to draw as it does not appear to be marked lexically. The evidence for this was:

TON *tú únga*	rank (position), status
SAM *tulanga*	position, station, what level you are at
HAW *kulana*	station, rank, title, position
RAR *turanga*	a site, a position (*turanga-au* 'site or seat of authority with *au* meaning a period of tenure in office, the ruling body of power')

That the etymon is reconstructable for PCP as well is indicated by the Fijian form *turaga* for chief or master, indicating that its generic meaning in PCP probably carried the sense of a position or title. In the Fijian case this developed into the specific title for chief, while in Polynesian another term **qariki* filled that role. Finally, while the term for power in the supernatural sense certainly seemed to centre around PPN **mana* as in Kirch's list, one for powerful in the sense of strength was more difficult to identify. Eventually I focused on PPN **mafi* on the following evidence: TON – powerful or power; EFU – hard work; NUK – strength; REN – strong, vigorous; TOK – favourite task, preferred work; HAW – strong, energetic, and MAO – work (which Biggs, Walsh and Waqa (1970) had glossed as both "powerful and hardworking"). It would seem that under a SHH, the two senses of power in English, which in Polynesia are the sacred and secular attributes of chiefs, were initially distinguished by separate lexical items.

Given the listing above already discussed by Kirch, and the additional discussion provided here, I believe it hard to maintain on the linguistic evidence that all that can be linguistically reconstructed for APS are "axes of descent, filiation, age, gender and achievement" as Sutton has claimed. Rather, one has to look within the coexistent semantic system for some form of a small scale incipient chiefdom present from the beginning. To confirm and expand on aspects of these lexical reconstructions by archaeological means is at

present not possible, and it will not be easy. Excavating objects and features that could lead to inferences of concepts such as **mana*, **mafi*, **pule*, **tuquranga*, **sau*, **rangi*, **qariki*, **tufunga*, **toa* etc. will not be accomplished in the same way as those for **talo* and **toki* were. Areal excavations of suitable early sites are required (Green 1993). But as Renfrew says, archaeologists now have an interest in reconstructing these aspects of culture, and the intersection with linguistics in this enterprise is likely to be vital. Let us not throw the baby out with the bathwater. Or to quote Renfrew (1987:262) again:

> I do not doubt that a sensitive analysis and interpretation of the shared early vocabulary, insofar as it can be constructed, of very much the kind undertaken by Benveniste, can answer some of the relevant questions. We can see now, however, that such a work of interpretation will need to make fewer prior assumptions about the general nature of that society.

7. WHAT'S IN PEOPLE'S HEADS VERSUS WHAT'S ON OR IN THE GROUND

Mallory (1989:122-123) perceptively comments "there is a sort of horrible irony in the fact that, while modern archaeologists are greatly interested in reconstructing the social system of prehistoric peoples, historical linguists offer the archaeologists such detailed reconstructions that they are still beyond archaeological retrieval even when we know what to look for". In Indo-European the work of Dumezil and his associates is instructive. They attract much negative comment from Renfrew (1987:250-262) who denies that on the archaeological record, Proto Indo-European society could be of the complex form described from reconstructions based on much later sources. This is not unlike the view expressed by Sutton for PPN. Thus Renfrew (1987:254) questions "one of the essential foundations of the whole Dumezilien scholarship: its historical reality". He would rather explain these as much later convergences of independent origin. Mallory (1989), on the other hand, treats these reconstructions more sensitively and with great respect. He even thinks (p.14) that there is something in them for archaeologists and goes on in some detail to offer examples of what they might expect to look for in the ground. Then wisely, I think, he concludes (p.142) as follows:

> There can be little doubt that the links between the reconstructed ideology and their expressions in material culture or behaviour of a prehistoric people may be far less than we hoped for...Dumezil himself has insisted that his Indo-European civilization is one 'of the spirit', and that it need not be tied down to the real Proto Indo-European world. Ideal worlds of myths, one may argue, are just that, and although they may be an expression of social realities, these need never take the corporeal forms required by the archaeologist.

It is well known that the Dumezilien type of analyses of Polynesian religions and myths are equally possible (Sahlins 1985:73-104; Valeri 1985) and we might expect scholars to one day also attempt to reconstruct a PPN or PCP ancestral form. However, the message seems clear, at least to me: much of any such reconstruction may reflect only what is deemed to have gone on in people's heads. Its realisation in the ground will probably be a rather more mundane affair. In fact, even in the realm of social relations, this same asymetrical situation will probably also apply. Ancestral Polynesian Society on and in the ground will not look as socially differentiated and complex as the linguistic evidence implies. In my view, Renfrew

and Sutton in their archaeological modelling approach have not taken this fact sufficiently into account.

Green, R.C. "Archaeological problems with the use of linguistic evidence in the reconstruction of rank, status and social organisation in ancestral Polynesian society". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*. **C-127:171-184**. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.171*

RECONSTRUCTING PROTO POLYNESIAN FISH NAMES

ROBIN HOOPER

1. INTRODUCTION

This paper has two aims. The first is to present a set of reconstructions of Proto Polynesian (PPN) and Proto Nuclear Polynesian (PNP) fish names.[1] The second, more exploratory aim is to discuss some of the problems that arise in attempting to reconstruct a taxonomic semantic domain such as this. Krupa (this volume) points out that the terms which make up a taxonomy "are notable for their maximum contextual autonomy, precision and absence of such semantic features as ambiguity, polysemy, synonymy and homonymy". Their meanings "lack modality and expressivity". One would not expect, then, that particularly intractable problems of semantic reconstruction would arise. Nevertheless, the semantic features mentioned by Krupa do sometimes occur, and also semantic shifts, particularly between co-hyponyms and in relation to hyponymous and hypernymous relations between lexemes, and can make the establishment of a proto-meaning difficult.

2. SOURCES AND METHODOLOGY

Appendix 2 contains 147 fish names, 115 of which are reconstructed at PPN level, and most of the remainder at PNP level (see Appendix 1 for abbreviations of language names). The reconstructions have been made in most cases on the basis of the distribution of the reflexes, in the light of commonly accepted subgrouping hypotheses. Consequently some must be regarded with suspicion because of the possibilities of diffusion, particularly within the central area of Tonga, Samoa and the islands closest to them. In such cases I have included a query or comment. For example, fish names found only in Tuvaluan, Tokelauan and Pukapukan or in these languages plus Eastern Polynesian languages, may not warrant a PNP reconstruction. Four names are found in Tokelauan and Pukapukan in addition to Eastern Polynesian languages; they are #22 **tupou(pou)*, #48 **(w)ewe*, #56 **komuli* and #63 **pakewa* (these numbers refer to Appendix 2). Five fish names found only in Pukapukan and Eastern Polynesian are #54 **luhi*, #68 **kopelu*, #85 **taamule*, #140 **kookili* and #143 **tootara*. These should be evaluated in the light of the discussion in Clark (1980) relating to Pukapukan borrowing from Eastern Polynesian languages. There is also evidence of diffusion of fish names between Kiribati, Tuvaluan, Tokelauan and Pukapukan, for

1 I wish to express my gratitude to the informants who have assisted me in my research on Polynesian fish names: Ropati Simona and Pakau Iosua (Tokelauan), Sitiveni Halapua (Tongan), Atawua Robati, Asapa Iti and Rutela Metua (Pukapukan), and Togakilo Isaako (Niuean). I would also like to thank Bruce Biggs, Ross Clark, Roger Green, Antony Hooper, Kevin Salisbury and Richard Walter for bringing data to my attention and for making helpful suggestions. None of them is responsible for the conclusions and opinions expressed here.

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 185-229.
Pacific Linguistics, C-127, 1994.

example Kiribati *kamaa*, cf. Tokelauan, Tuvaluan, Pukapukan *kamai* 'rainbow runner' (#69); Kiribati *baniniua*, East Uvean, Tokelauan *pānanua* 'barracuda' (see note on #36); and see the discussion of *palu* in section 4. Fish names reconstructable only at Eastern Polynesian level are not included in this study unless they are of interest because of the above considerations or because of the particular semantic interest of the Maori reflex.

Naturally, most if not all the fish names discussed here are represented in the POLLEX files. However, this research aims at more precise species identifications than are contained in the POLLEX files, and has been carried out independently of POLLEX for the most part, although I have used the files as a source of fish names for further investigation. Some POLLEX reconstructions without species identifications, such as **mamo* 'fish, a small species' are not included here. Several names reconstructed at PNP level in POLLEX are taken to PPN level here.

As can be surmised from the number of reconstructions, Polynesian languages have an extensive and comprehensive nomenclature for fishes. Very full inventories of fish names accompanied by reliable scientific identifications have been assembled for a number of languages, including Easter Island (Randall & Cea Egaña 1984), East Uvean (Rensch 1983), Marquesan (260 names, including many binomials, Lavondès 1977), Niuatoputapu (over 200 names, including some binomials, Dye 1983), Rapa (Randall & Sinoto 1978), Cook Islands Maori (Bacquie 1977), and Tokelauan (my own research). The papers by Dye, Lavondès and Rensch include discussions of classificatory strategies in the languages they investigate, and Dye gives close attention to the lexical structure of the Niuatoputapu fish names. These studies reveal a high degree of formal and semantic correspondence in this domain across the languages of the group, which is attributable to a comparative uniformity in the ichthyological fauna of the tropical South Pacific.

A number of the studies referred to above were done by, or with the assistance of, ichthyologists. My own work on Tokelauan, and Rensch's (1983:59-60) on Uvean, involved working with experienced middle-aged fishermen, and referring to the colour photographs and drawings in several excellent books, in particular Bagnis et al. (1972) and Fourmanoir and Laboute (1976). In some cases actual specimens were compared with the photographs, in other cases the informants simply drew on their knowledge of the fishes.

Zoologists are inclined to adopt a cautious if not downright critical attitude to this procedure, which is adopted by many linguists and anthropologists in the field. In fact it is perfectly satisfactory for the kind of task undertaken here, for the following reasons. Firstly, many of the most important species are so very distinctive that confusion will not occur, for example the convict tang *Acanthurus triostegus* (PPN **manini*). Secondly, the species liable to confusion are likely to be extremely closely related, with the further possibility that they are associated with different habitats. As an example, the deepwater snapper *Tropidinius zonatus* 'flower snapper' has been identified in Tahiti by Bagnis et al. (1972), where it is called *paru ta'ape*; it has also been identified in Tuvalu, by the South Pacific Commission survey, with the name *palu savane*. In the Niuean survey, two *Tropidinius* species were caught, *T. zonatus* and *T. argyrogrammicus*, both with the English vernacular name 'flower snapper' and the Niuean name *palu heahea*. A possible confusion between these two species on the part of researcher or informant in another island community is not going to invalidate the reconstructed meaning for **palu* (+ modifier) of '*Tropidinius* spp., including *T. zonatus*'. Moreover, species can be polymorphic, different habitats leading to the development of

markedly different ecotypes. There are even, as Diebold (1985:16-18) points out, attested cases in which such an ecotype has been mistakenly identified by ichthyologists as a distinct species.

Another source of difficulty which originates with the zoologists themselves is the constant revision of fish taxonomy and nomenclature, or the use of competing classifications, accompanied by a surprising laxity in the citing of scientific synonyms. Consequently scientific names encountered by the researcher sometimes turn out to be synonyms, and not the names of different species.

3. WHAT WE KNOW ABOUT PROTO POLYNESIAN FISH NAMES

Like the studies of individual languages on which I have drawn, this investigation is concerned with the names of *fishes*, in the contemporary folk and zoological understanding of that term. In Polynesian languages the life-form term which includes fishes, in most cases a reflex of PPN **ika*, refers also to several other marine organisms, including cetaceans, cephalopods and turtles. The decision not to extend the study to the names of these species was a purely practical one. Apart from the need to limit the scope of the study, there was also the fact that there are no detailed investigations of these other types of marine fauna on which the linguist can draw, comparable to the studies of fish names cited in this paper.

Although the present study does not claim to be exhaustive (as stated above, binomial terms are not included except in a few instances), there is reason to believe that the PPN reconstructions contained in Appendix 2 must represent a very substantial proportion of monomial fish terms in PPN. The present-day lexicons collected by Rensch in East Uvea, Dye in Niuatoputapu and myself in Tokelau contain approximately 130 monomial fish names. In all communities some names are innovations, and it is reasonable to suppose that some PPN etyma have not survived in any daughter language.

Of the 115 PPN reconstructions, 112 are primary lexemes.[2] If we examine the list of East Uvean fish names in Rensch (1983), we find that 74 primary lexemes reflect PPN etyma; 74 out of 112 would represent a retention rate of 66%. The comparable figures for Niuatoputapu (Dye 1983) are 68 retentions, or 60.7%. In my own data for Tokelauan there are 94 retentions, or 83.9% – an extraordinarily high figure. If we hypothesise that the Proto Polynesians, like their present-day descendants, used a vocabulary of about 130 monomial fish names, the retention rates are more plausible: 60% for East Uvean, 52.3% for Niuatoputapu, and 72.3% for the Tokelauan data[3] – close to the expected average retention rate of 70% for core vocabulary (Ross Clark, pers.comm.). It is not the practice to include fish species names in core vocabulary lists, and from this point of view the expected retention rate would be lower for fish names. On the other hand, the economic and cultural importance of fishing in Polynesian communities, especially atoll communities, suggests that

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2 I am including in this category some lexemes which are analysable into head and modifier(s), but of which the head clearly does not denote a superordinate taxon, for example **mataʔitaliŋa* 'hammerhead shark'. On the other hand the binomials **fai kili* and **fai manu* are secondary lexemes, being hyponyms of **fai* 'stingray'.

3 The higher figure for Tokelauan could indicate either a more nearly complete inventory of local fish names than in the other two studies, or the more conservative nature of the Tokelauan lexicon.

fishing terms and fish names are good candidates for inclusion in core vocabulary lists for this region. Dye comments on the conservative nature of Niuatoputapu fish nomenclature, as borne out by the fact that "[t]axa from an earlier Samoic nomenclature persist, though Tongan is now the spoken language" (Dye 1983:265).

The picture that emerges from these 115 reconstructions is one of a community which, like the earlier Lapita culture as described in Walter (1989), exploited the full range of marine habitats with appropriate fishing techniques.[4] The lexicon shows a bias towards those species which are economically important, particularly in the degree of differentiation at the species level and in growth stage terms. For example, the small colourful reef fish which loom large in a tourist's impressions of the tropical underwater environment receive scant attention in the Proto Polynesian vocabulary: **tifitifi* for the numerous butterfly fishes and angelfishes (Chaetodontidae), **mutu* for the equally varied damselfishes (Pomacentridae). With these we may contrast the more elaborate terminologies for the jacks (Carangidae), tunas (Scombridae) or groupers (Serranidae). These issues are discussed further in the next section.

4. SOME ISSUES IN THE SEMANTIC RECONSTRUCTION OF FISH NAMES

Speakers of Polynesian languages classify fishes on the basis of perceptual similarity for the most part. Linnaean taxonomy of fishes and other life forms is also based primarily on perceived morphological similarity. It is thus not surprising that the researcher of Polynesian fish names gets the impression of a high level of conformity between Polynesian and Linnaean categories, an impression supported by the discoveries of Bulmer (1967, 1974), Berlin et al. (1974) and others on the nature of folk taxonomies. In the discussion which follows, Polynesian fish taxonomy will be discussed as it relates to Linnaean taxonomy. This approach is not meant to imply an assumption of the superiority of Western scientific taxonomy (any more than is the presentation of the data in Appendix 2 in approximate phylogenetic order). Reference to a universally accessible naming system is necessary simply so that we can be clear which fishes we are talking about (within the above-mentioned limitations of that same naming system). English vernacular fish names exhibit so much dialectal variability as to be useless for our purposes; to take an example close to hand, the term 'snapper', generally associated with fishes of the family Lutjanidae, is in New Zealand applied to *Chrysophrys auratus*, a member of the family Sparidae.

Polynesian fish names can be divided into primary lexemes, usually consisting of one word (and also referred to as monomials), for example Tokelauan *humu* 'triggerfish' (Balistidae), and secondary lexemes (also called binomials), usually consisting of one of the primary terms plus a qualifying term, for example Tokelauan *humu tuākau*, literally 'triggerfish of the sea outside the lagoon' (*Melichthys niger*, black triggerfish). Many secondary lexemes could undoubtedly have been reconstructed at some level, but very few of these are included in this study.

A high proportion of Polynesian primary lexemes denote terminal taxa, that is to say they have no named hyponyms. However, this does not mean that they always denote single species. The fish taxonomies of individual Polynesian languages show the irregular

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4 For a fuller discussion the reader is referred to Walter's paper and to the detailed description of present-day fishing ecology in Dye (1983).

relationship to scientific (Linnaean) classification which is characteristic of folk taxonomies in general (see Berlin et al. (1974) for a fuller discussion). If we take the primary lexemes as representing the 'folk-generic' or 'basic level' taxonomy, we find that these taxa do not always correspond to Linnaean genera. Instead, we have a system in which some primary lexemes correspond to the family, some to the genus, and some to species. Other terms correspond closely to English vernacular taxa embracing several families or even suborders, such as Tokelauan *magō,* 'shark', *fai* 'ray' or *puhi* 'eel'.

Of the 115 PPN reconstructions, it can be said with reasonable confidence that about a quarter correspond to scientific species, about a quarter to genera, and less than ten to higher level groupings. The remainder are indeterminate between family and genus, or between genus and species, for the reasons given above. This situation reflects the fact that the most striking morphological differences are often found at taxonomic levels other than the genus. It seems most likely that for any variety the folk generic term will be situated at the level of most striking perceptual salience, subject, however, to another important factor: the degree of economic importance of the species concerned. As several observers have commented (for example Dye 1983:260) species that are of little or no significance as a food source are not highly differentiated in the lexicon, for example PPN **tifitifi*, a term which embraces butterfly fishes (Chaetodontidae) and angelfishes (Zanclidae). Conversely, the economically very important families Scombridae and Carangidae have basic (monomial) nomenclature at the level of the biological species, with further differentiation based on growth stages.

It is usual to attribute a particular meaning to each reconstructed form, if this form-meaning association is found in the appropriate distribution in daughter languages. Often the distribution of reflexes and meanings (the 'semantic profile') allows a lexical reconstruction with a gloss of considerable generality, such as 'fish species', 'shark species', or 'kinship term'. It is convenient to reserve the term *semantic reconstruction* for the association of a form with a gloss of a much greater degree of specificity.[5] In the case of Proto Polynesian fish names, reconstructions with a high degree of reliability are easily made, with glosses of a rather general kind, such as 'parrotfish' or 'Labridae sp.'. However, semantic reconstructions that consist of precise identifications at the appropriate taxonomic level pose more difficulty, because of the nature of the data on which semantic reconstruction must be based. I will discuss a number of cases which pose interesting problems of semantic reconstruction.

Let us first examine the example of the family Lutjanidae. About seven names for Lutjanids can be reconstructed at PPN level (#72 - #81). Some of these can be precisely associated with particular species: **muu, *ʔutu, *sawane* and **palu* (in the latter case a group of species, of which more below). We are left with the names **faŋamea, *taŋaʔu, *sa(a)putu* and most probably **taʔiwa* and **taaeʔa*. The last two are found in Niuatoputapu with a glottal stop which suggests a Tongan origin and thus justifies a PPN reconstruction.

The etymon **taŋaʔu* has the reflexes given below, with identifications made by researchers in the language areas concerned (*Lutjanus fulvus* and *L. vaigiensis* are synonyms, the latter term being the one in current use. *L. marginatus* is also probably a synonym for *L. vaigiensis*):

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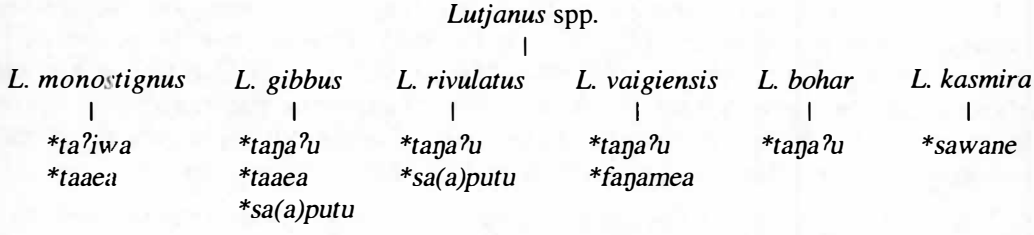
5 A slightly different and theoretically more rigorous distinction between these two terms is developed in Blust (1987a). Diebold (1985:57, fn.4) makes a similar point to Blust, his use of the expressions 'onomasiology' and 'semasiology' being analogous to Blust's use of 'lexical' and 'semantic'.

TON	*tanga'u*	*Lutjanus fulvus* and other *Lutjanus* spp.
SAM	*tagau*	*L. marginatus*
EUV	*taga'u*	*L. fulvus, L. rufolimentus*
TOK	*tagau*	*L. vaigiensis*
TAH	*to'au*	*L. vaigiensis*
TUA	*tagau*	*L. bohar*
CIM	*tangau*	*L. bohar, L. fulvus* and *L. gibbus*

Examining these data in isolation, it is impossible to determine whether the PPN term **taŋaʔu* corresponded to a genus, a single species, as in Tokelauan, or a group of species within one genus, as in the case of Cook Islands Maori and Tongan. The species involved are all yellow or yellow-red, and this appears to be the unifying semantic feature of the group. Consideration of the whole set of names for species of genus *Lutjanus* is a more rewarding endeavour. If one plots the distribution of Polynesian names for *Lutjanus* species onto a tree diagram representing the Linnaean taxa cited in the several identifications (see Figure 1), one finds that their semantic range is either confined to a single species (as with **taʔiwa, *faŋamea* and **sawane*), or embraces more than one species of the genus, as with **taaeʔa, *taŋaʔu* and **sa(a)putu.*

In addition to the identifications given in Figure 1, most of the fish names except for **sawane* also occur with glosses such as 'red snapper', 'general name for snapper', 'red emperor', or '*L. fulvus* and other snapper spp.' *L. kasmira* is strikingly different in appearance to the other fishes under consideration, being blue with yellow stripes instead of reddish-gold. It is thus not surprising that the etymon **sawane* fails to participate in the semantic shifts or hypernymous widening that beset the other fish names in this set. It would seem that the other names between them differentiated the semantic field of reddish-yellow *Lutjanus* species. Of these, the ones of which the reflexes are identified most consistently with a single species are **faŋamea* '*L. bohar*', and **taʔiwa* '*L.monostignus*'. Beyond that it is impossible to specify, but we have at least established that the Proto Polynesians made a five-way distinction within the group of reddish-yellow *Lutjanus* species. By comparison with the Linnaean system there is lexical over-differentiation, as there is no single term corresponding to the genus. We might, however, interpret the semantic profiles of the five cognate sets as an indication that reddish-yellow *Lutjanus* species constituted some kind of covert category for Polynesian fishermen.



Note: In order to avoid complicating the diagram with a mass of language names, I have used the PPN forms of the fish names to indicate that a reflex of this name occurs in one or more languages with the identification given.

FIGURE 1

The genus *Caranx* constitutes another interesting case. Four species of this genus are particularly important as food fish, and they closely resemble one another in appearance: *C. melampygus* (Cuvier & Valenciennes), blue jack, *C. ignobilis* (Forskål), big-headed jack, *C. lugubris* (Poey), black jack, and *C. sexfasciatus* (Quoy & Gaimard), horse-eye jack. Six names can be reconstructed, five of them at PPN level (#52, #53, #55, #57 and #59), but they are not applied consistently to the same species; also, growth terms for *Caranx* species exist in all languages, and these same five words can occur at different levels in these sub-systems. *C. melampygus* is one of the most commonly caught and highly esteemed food fishes, yet with surprising frequency its name is a local innovation. This may be due to the fact that it is generally assumed to be a younger *C. ignobilis* (*ulua*), as happens in Tokelau and Tahiti to my knowledge, and no doubt elsewhere. There is a widespread tendency for the names of juveniles to be local innovations. However there is one striking exception to this tendency: *lupolupo* has widespread distribution as a name for juvenile *Caranx* species. My Niuean informant grouped the four species together and gave the following growth terms for them:

lupolupo	baby
malausea	to 12 inches long
aheu	to 20 inches long
ulua	largest growth stage
uluakata	'nickname' for very large *Caranx*

All of these names except *malausea* occur for *Caranx* sp. in other languages.

Tokelauan informants provided the schematic representation of the growth stages of *Caranx* shown in Figure 2. It is noteworthy that the degree of lexical differentiation varies from one life-stage to another, but that only three species in all appear to be recognised here.

Taken together, the facts presented above, and in particular the widespread occurrence of *lupolupo* as a term for juveniles of all species, and of *ulua* as a term for mature or very large specimens, constitute good evidence for a covert superordinate category corresponding to the genus *Caranx*.

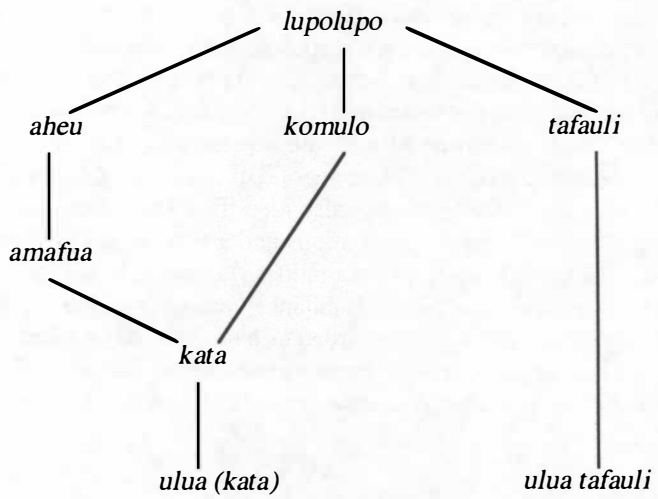


FIGURE 2

Against this background, certain examples stand out which are not in accord with the Linnaean system of categorisation. On the one hand, related species may be assigned to different classifications because of different functional criteria. Tokelauans use the term *itū kāiga* (literally 'side of the family') for groupings of species which are held to be related. The *Caranx* varietes *aheu*, *alaala* and *tafauli* are assigned to one *itū kāiga* and the Lutjanidae and Lethrinidae varieties *fagamea*, *filoa*, *taiva*, *tāea*, *tagau* and *haputu* are assigned to another. However, within the family Scombridae, also an economically important one, *tavatava* 'dog-tooth tuna' is not assigned to the same *itū kāiga* by my informant as the pelagic *kakahi* 'yellow-fin tuna', because *tavatava* is a 'reef fish'. Nor is *atu* 'skipjack tuna' included with either of these, because it is one of the *ika e hula i vāi tauhaga* 'fish which appear at certain times of the year'. Yet the morphological similarities between these three species are at least as salient as in the case of the *Caranx* or *Lutjanus* species discussed above.

On the other hand, a basic-level fish name may be applied to two or more species from different families or even suborders of fishes, in a categorisation based on habitat or behavioural patterns. An example of this is PPN **talitali?uli*, widely reflected as the term for remora (*Echeneis naucrates*, family Echeneidae) but frequently applied also to pilot fish (*Naucrates ductor*, family Scombridae). These are Perciform fish of different families and markedly different appearance, but united in their close association with sharks. For Tongan *teliteli'uli* Churchward (1959) gives the gloss 'pilot fish'. Dye (1983) includes the same form (identifiable as a Tongan word from its phonological form) in his list of Niuatoputapu fishes, but with the gloss 'remora'. The entry for *talitaliuli* in the *Tokelau dictionary* (Simona et al. 1986) reads "Fish parasites which include the pilot fish (*Naucrates ductor*), cleaner-fish or paradise fish (*Labroides dimidiatus*) and the *teletelevakaniu* or suckerfish (*Echeneis naucrates*)".

Let us also consider the fish name **oo* (#147), of which a number of reflexes refer to the fry of the genus *Siganus*. I suspect, however, that this name was used for a number of small schooling species, on the basis of size, behavioural characteristics, and function as baitfish, and that it is impossible to suggest a precise identification for the protoform. The situation in Tokelau is typical. There, *ō* are tiny, whitebait-sized fish which form dense, spherical schools outside the reef during the dark phase of the moon. They are a food source for several varieties of pelagic fish, and their appearance is associated with the presence of skipjack. Quantities of fresh, dead *ō* can be used for chumming during pearl-shell poling for skipjack. A highly valued food fish in themselves, they are caught in a fine-meshed net and eaten whole, either fried, or sun-dried and subsequently cooked in coconut cream. An ichthyologist has recently identified specimens of Tokelauan *ō* as damselfish, *Lepidozygus tapeinosoma* Bleeker (Gillett 1990), and has also identified Tokelauan *lōtala* as the fry of the genus *Siganus*, which occur in large aggregations and are more mobile than *ō* (Gillett 1985, Table 3). A technical fisheries study of tuna baitfish[6] contains a suggestive description of fusiliers: "Fusiliers...are taken in greatest abundance near reefs and are important baitfish in many areas. They are robust and highly regarded as bait. As with cardinals, careful dimming of the light is often necessary to induce them to rise off the bottom" (Lewis et al. 1983). Kennedy (1931) describes Tuvaluan *ō* as silver and bluish-green in colour; however Gillett's

6 "Tuna baitfish are a diverse group of small schooling fishes that are used as live bait in pole-and-line fisheries for skipjack and other tunas in most tropical and subtropical areas" (Lewis et al. 1983:1).

own enquiries in Tuvalu elicited a description of a small red baitfish. Pukapukan *wō* have the same behavioural characteristics as Tokelauan *ō*.

My final comments concern a fish name which is the subject of another paper (Hooper 1991). In this case more extensive extralinguistic information of a specialist kind is necessary to prevent a misinterpretation of the linguistic facts. The name **palu* is reflected in many languages with polysemous reference to a number of fish species which inhabit very deep water and are caught on long-lines. Only some of these species are phylogenetically related to one another. Berlin, quoted in Lakoff (1987:37) mentions the occurrence in folk taxonomies of "functional basic-level categorization, which adds in factors to do with culture and specialised training". Lakoff himself calls such factors 'interactional' properties. It seems likely that **palu* in Polynesian is an example of a category which is defined by an interactional property: the fishing strategies devised to exploit the possibilities of a particular habitat, 400 to 500 metres below the surface of the sea.

It should be emphasised that *palu* is not what Cecil Brown (1984:10) calls a "special purpose folk category", that is, a term such as 'farm animal' or 'desert shrub', which groups together independently named species under an ecological label. In other words, *palu* is not simply equivalent to 'deep-sea fish'. Polynesian languages have such terms, for example the Tokelauan categories referred to above, as well as Tokelauan *ika o te namo* 'lagoon fish', or *ika o te moana* 'ocean fish', but species included in those categories have their own names.

Reflexes of **palu* occur as primary lexemes and as the first term in secondary lexemes. The difference between the two is in general associated with two different fishing strategies. As a primary lexeme *palu* refers to the oilfish *Ruvettus pretiosus* (family Gempylidae). *Ruvettus* fishing is done at night, in deep water some distance from the reef. Not all Polynesian communities have access to a marine environment suitable for the specialised techniques involved. As depths of around 400 metres at some distance from the shore provide the best catches, sheltered lee shore fishing grounds are essential. The techniques and equipment employed, including the distinctive large, triangular wooden hooks, have been described in some detail in Kennedy (1931), Nordhoff (1930), Beaglehole and Beaglehole (1938) and Bacquie (1977). The oilfish, or more aptly, the castor-oil fish, is a notable species on account of its large size and horny scales, and also the quality of its flesh, which is an opaque pure white and permeated with a fine oil which has a laxative effect. This fish may also on occasion be referred to by a binomial, such as Tokelauan and Niuatoputapu *palu pō* 'night *palu*'.

Daytime fishing of comparable depths, but closer to the reef edge, produces a number of species referred to by binomials. In Tokelau this type of fishing is known as *makomako*, and in Pukapuka as *tuku moana*. The description given in Beaglehole and Beaglehole (1938:65) tallies closely with Tokelauan accounts of the technique: "*Tuku moana* fishing is deep-sea hand-line fishing up to about 300 fathoms and involves the use of a special composite fishing apparatus (*taumakomako*) consisting of four or more hooks fixed by spreaders to a single line".

The group of *palu* which are caught by the daytime technique consists primarily of the four deepwater snappers listed in #81: *Aphareus furcatus* 'small toothed jobfish', *Etelis carbunculus* 'squirrel fish snapper' or 'short-tailed red snapper', *Pristipomoides argyrogrammicus* 'big-eyed snapper', and *Tropidinius zonatus* 'flower snapper'. The four species have in common a pink to yellow colour range and a maximum length of three feet.

Certain other deepwater species have the name *palu* in some languages, for example Tokelauan *palu magō*, Tuvaluan *palu magō*, Pukapukan *palu magō* 'deep-sea shark'; Tuvaluan *palu paatuki*, Tahitian *palu hoa* 'orange rock cod *Epinephelus truncatus*'. In addition, numerous binomials are recorded with glosses like 'species of deep-water fish'. Beaglehole and Beaglehole (1938:29) give eighteen kinds of *palu*. In many cases the attributive term denotes a type of fish which the deepwater variety presumably resembles, for example *palu yue* 'giant balloon fish', cf. *yue* 'balloon fish'. None of these secondary lexemes is sufficiently widely distributed to warrant a PPN reconstruction.

The name *palu* thus embraces a major semantic discontinuty. The distribution of semantic reflexes taken in isolation from other considerations would allow us to reconstruct the meanings 'oilfish' and 'deep sea snapper species' for **palu*. However, close examination of extralinguistic factors, in particular the archaeological evidence, reveals the first of these identifications to be highly problematic (see Hooper (1991) for a discussion of these factors). We must allow for the possibility of independent semantic shift in different languages as the range of possible referents of *palu* was extended to accommodate the knowledge and exploitation of additional deepwater species. *Ruvettus* fishing was most probably a development and extension of deepwater shark fishing techniques, and the *Ruvettus* hook a modification of the large wooden shark hook, adapted to the mouth shape of the *Ruvettus* and its characteristic method of taking the bait (Anell 1955:235-237). Diffusion of the particular technique would have been accompanied by diffusion of the name of the fish.

Given the likelihood that *Ruvettus* was a late addition to the category *palu*, we can make two observations of linguistic interest. The first concerns strategies for naming novel species. Lexical innovations in fish nomenclature are common at all levels of the Polynesian language family. The *Ruvettus* is a most singular creature and on the grounds of its perceptual salience might seem to have warranted a name of its own. It is something of a puzzle that Polynesian speakers chose to lump it with the other deepwater species known as *palu*.[7]

The second observation concerns the nature of the category that resulted. In a study of salmonid fish nomenclature in Indo-European, A.R. Diebold (1985:4) comments that "when a...semantic domain is disturbed by introduction of a conceptual novelty, the associated lexically structured word-fields undergo perturbations". We can surmise that the history of the word *palu* has been associated with such perturbations. It seems likely that the original referent of the term was the group of deepwater snappers found in so many PN languages with this name. As such it was no different from other folk generics that denote a group of related species, such as *humu* 'triggerfish' and the various secondary lexemes which incorporate this term. As noted above, the four snapper species are similar in appearance and quite closely related phylogenetically.

The initial 'perturbations' in this lexical domain occurred with the tendency to bestow the name *palu* upon other fish caught with the same techniques and in a similar habitat; it was at this point that interactional factors replaced perceptual similarity as the defining criteria for the category *palu*.

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7 Eastern Polynesian communities which fish for *Ruvettus* do not use the name *palu*, which is replaced by an innovation within EP, the form **kuravena*. Note also the recent Easter Island innovation, *konsome*, a term "taking its origin from the consommé made from the flesh of *Ruvettus*" (Randall & Cea Egaña 1984: 6-7).

A further perturbation must have occurred with the incorporation of the *Ruvettus* into the category. In languages with the full range of meanings for *palu*, the primary referent of the monomial term is *Ruvettus pretiosus*. In the absence of a disambiguating context, a reference to *palu* will be interpreted as meaning 'oilfish'. Both the effort and skill involved in the method of angling, and the size and grandeur of the catch, ensure that *Ruvettus* is *palu* par excellence. Yet *Ruvettus* has few morphological features in common with the snapper varieties also known as *palu*.

It is generally assumed that focal members of a category have more of the features associated with that category than do more peripheral members. So the sparrow is a better example of the category 'bird' than is the emu, both because of its size and its ability to fly. However in the case of *palu* we have a folk zoological category of which the best exemplar shares fewer distinguishing morphological features with other members of the category than those more peripheral members share with one another. Only when we recognise the interactional nature of the category, and the fact that *Ruvettus* is the most valued product of the type of interaction concerned, long-line deep-sea fishing, can we understand its focal status.

APPENDIX 1: KEY TO LANGUAGE NAME ABBREVIATIONS

ANU	Anuta	PEP	Proto Eastern Polynesian
CIM	Cook Islands Maori	PIL	Pileni
EAS	Easter Island (Rapanui)	PNP	Proto Nuclear Polynesian
EFU	East Futunan	POC	Proto Oceanic
EUV	East Uvean	PPN	Proto Polynesian
FIJ	Fijian	PRO	Proto Remote Oceanic
HAW	Hawaiian	PSO	Proto Samoic-Outlier
ISLV	Isles sous le vent	PUK	Pukapukan
KAP	Kapingamaringi	RAP	Rapan
KIR	Kiribati	REN	Rennellese
LUA	Luangiua	SAM	Samoan
MAN	Mangaia	SIK	Sikaiana
MAO	New Zealand Maori	TAH	Tahitian
MEF	Mele Fila	TIK	Tikopian
MQS	Marquesan	TOK	Tokelauan
MVA	Mangarevan	TON	Tongan
NIU	Niuean	TAU	Taumako
NTP	Niuatoputapu	TUA	Tuamotuan
NUK	Nukuoro	TUV	Tuvaluan
PAN	Proto Austronesian	WFU	West Futunan
PCE	Proto Central Eastern Polynesian	WUV	West Uvean
PCP	Proto Central Pacific		

APPENDIX 2: THE RECONSTRUCTIONS

Note: For ease of reference I have followed the convention of presenting the fish names in approximate phylogenetic order. The individual reflexes used to support the reconstructions

are given in the orthography of the sources, whereas the reconstructions themselves employ a consistent orthography, including the use of double vowels to indicate a long vowel and IPA symbols for glottal stop and the velar nasal. Where there is no gloss beside a fish name it can be taken to be consistent with the gloss I have given for the protoform. The Proto Austronesian (PAN) reconstructions cited are from Blust (1971, 1972c, 1980a, and 1983-84a). Proto Oceanic (POC), Proto Remote Oceanic (PRO) and Proto Central Pacific (PCP) reconstructions are from Walter (1989) or Geraghty (this volume), as indicated. In some examples I have made one minor change in Geraghty's orthography, in using /ŋ/ for his /g/.

Data from Geraghty's paper has allowed the reconstruction of a number of PPN etyma which were not included in my original draft. These are #14, 15, 16, 17, 58, 71, 94 and 123.

CARCHARHINIDAE and SPHYRNIDAE: SHARKS

#1 PPN *maŋoo 'general term for shark spp.'
PCP *maŋ(e,o)o (Geraghty)
NIU *mangoo*, SAM, TOK, TUV *magō*, PUK, NUK *mangō*, KAP *mongohenua*, LUA *magoo*, REN, TIK *mangoo*, MEF *magoo*, WFU *mago*, WUV*mangō*, EAS *māngo*, HAW *manō*, MQS *mako*, *mokō* (North), *mano*, *monō* (South), TAH, RAP *ma'o*, CIM, MAO *mangō*

This is the general term for shark species in the languages in which it occurs. In Easter Island it is used for Carcharhinidae (requiem sharks), Sphyrnidae (hammerhead sharks), and Squalidae (dogfish sharks), but other names are used for Lamnidae, Alopiidae and Rhincodontidae spp. (Randall & Cea Egaña 1984). The short final /o/ of the Tahitian and Marquesan reflexes is an irregular development, seen also in KAP *mongohenua*. Two specific terms worth noting are TOK *moko haa* '*Isurus glaucus* (Müller & Henle), mako shark' and KAP *mogo lewe* '*Carcharhinus longimanus* (Poey), white-tipped shark' (cf. PPN **moko* 'lizard' as a possible source of euphemism in these expressions).

#2 PPN **tanifa* 'shark sp.'
PCP **taniva* '*Galeocerdo* tiger shark' (Geraghty)
TON *tenifa* 'very fierce k.o. shark', NTP *tenifa* 'whale shark', NIU *tenifa* 'general name for shark', WUV *tanifa* 'espèce de requin, Carcharhinidae', SAM *tanifa* 'large man-eating shark', TUV *taanifa* '*Saurida* sp., lizard fish', PUK *taniwa* 'a fierce shark' (Beaglehole & Beaglehole n.d.:1210), 'deep sea, with sharp teeth' (Beaglehole & Beaglehole 1938), TIK *tanipa* 'type of shark, or ocean monster', MQS *tānifa* '*Lutjanus monostignus*', MAO *taniwha* 'shark or any formidable marine creature', *mangō taniwha* 'white pointer shark'

The Tuvaluan and Marquesan identifications are hard to explain, but for the latter cf. PNP *taaiwa*.

#3 PPN **mata?italiŋa* '*Sphyrna* spp., hammerhead shark'
PCP **mata?italiŋa* (Geraghty)
TON *matai*, NIU *matei*, EUV *mata 'i taliga*, TOK *mata i taliga*, TUV *maitai taliga*, LUA *memeakaliŋa*, REN *mata 'taginga*, TIK, ANU *matai taringa*

An obviously descriptive name ('eyes on ears'). The term has been lost in Eastern Polynesian, which is surprising in view of its aptness.

#4 PPN **naiufi* 'shark sp.'
PCP **-ufi* 'k.o. large shark' (Geraghty)
TON *('anga)neiufi*, SAM *naiufi* 'k.o. shark', TIK *naifi* 'type of shark (unid.)', EAS *niūhi* '*Carcharodon carcharias*, mackerel shark', MQS *niuhi* 'Carcharhinidae sp.', TUA *niuhi* 'very large shark'

Limited distribution but geographically well dispersed; the Tuamotuan identification is cited from Rensch (1988:158).

#5 PPN **ʔaso* 'shark sp.'
PCP **ʔaso* 'k.o. large shark' (Geraghty)
TON *'aho* 'k.o. shark', SAM *aso* 'white-tipped shark', TOK *aho* 'a huge, clumsy, grey deep-sea fish about twenty feet long...probably belongs to the shark family but is not as fierce', NUK *aho* 'white-tipped shark', MAO *aho(aho)* 'a fish'

DASYATIDAE, MYLIOBATIDAE, MOBULIDAE: RAYS

#6 PPN **fai* '*Himantura* spp., stingray, general term'
POC **paRi*, PAN **paRi*, PCP **vai* (Geraghty)
TON, EUV, EFU, SAM, TOK, TUV *fai*, PUK *wai*, KAP *hai*, LUA *ha'ii*, REN *hai*, TIK, ANU, PIL, WFU, WUV, MEF *fai*, HAW, MQS *hai*, TAH *fai*, MAO *whai*

In addition to the folk generic term, there are two widely distributed secondary lexemes, given below.

#7 PPN **fai manu* '*Aetobatis narinari* (Euphrasen), eagle ray'
PCP **vaimanu*, PEO **vaRimanu* (Geraghty)
TON, NTP, EUV, EFU, TUV *fai manu*, KAP *hai manu* 'bar ray', cf. *hai loto gelegele* 'eagle ray', TAH *fai manu*, MAO *whai manu*

Compare PPN **manu* 'bird'. Note also SAM *faipe'a*, TAU, PIL *hai peka* and TIK *fai peka* 'eagle ray'; cf. *peka* 'bat'. Geraghty (this volume) tentatively reconstructs PCP **vaibekwa*, but comments that "the chances of parallel development of the form...are very high". However, this caveat also applies to **faimanu*.

#8 PPN **fai kili* 'sandpaper ray'
TON, NTP, EUV, TOK, TUV *fai kili*, TAU *hai kili*

Another descriptive term. The rough skin of this species is put to a number of uses. Rensch (1983) identifies EUV *fai kili* as *Taeniura melanospila* (Bleeker); cf. PPN **kili* 'file', a more likely qualifier than **kili* 'skin' although either is plausible.

#9 PNP **faafaalua*, '*Manta alfredi* (Macleay), manta ray'
TOK *fāfālua* '*A. narinari*, eagle ray', PUK *wāwālua*, HAW *hāhālua*, MQS *hāhā'ua*, TAH *fāfāpiti*, TUA *fafarua*, CIM *ārua* 'large species of voracious fish' (Savage 1962).

All are glossed 'manta ray' except where otherwise indicated. The lack of correspondence in the Tahitian form is due to the replacement of *rua* by *piti* as the word for 'two'. The semantic shift in the Tokelauan form is puzzling; the Tokelauan word for manta ray is *lautiapua*. Note also WFU *fafataro* (no semantic information).

ALBULIDAE

#10 PPN *kiokio '*Albula vulpes* (Linnaeus), bonefish'
PCP *k(i,u)o (Geraghty)
TON, NTP *kiokio*, EUV *kiokio* '*Elagatis bipinnulatus*, rainbow runner', TOK, TUV, PUK *kiokio*, TIK *kiokio* '*Chanos chanos*', TAU *kiokio* '*Harengula abbreviata*, southern herring', HAW *'o'io*, MQS *kiokio*, TAH *'io'io*, TUA, CIM *kiokio*

All reflexes are glossed *A. vulpes* except where indicated. The TAU *kiokio* is a member of the order Clupeiform, to which Albulidae also belong. In the case of the East Uvean form, the semantic shift is quite marked.

CHANIDAE

#11 PPN *?awa '*Chanos chanos* (Forskål), milkfish or salmon herring'
PAN *qawa? 'milkfish', POC *qawa* (Walter 1989), PCP *?awa (Geraghty)
TON *'ava*, EUV *ava* '*Mugil cephalus*, mullet sp., also Polynemidae sp.', *avaava* '*Megalops cyprinoides*, tropical tarpon', SAM, TOK, TUV, PUK *ava*, HAW *awa*, TAH, CIM *ava*, Tubuai *avaava*

Again, marked semantic shift in the East Uvean form, otherwise perfect semantic correspondence.

MURAENIDAE, CONGRIDAE: EELS

#12 PPN *toke 'sea eel'
TON, NTP, NIU *toke*, EUV *toke* 'generic term for morays', SAM *to'e*, EAS *toke* '*Brotula multibarbata* (Temminck & Schlegel)', HAW *ko'e* 'worm of any kind', TAH *to'e* 'earthworm, intestinal worm', MAO *toke* 'a fish'

#13 PNP *pusi 'sea eel, *Gymnothorax* spp.'
PCP *p(i,u)si (Geraghty)
EFU *puhi* 'sea snake, sea eel, conger', SAM *pusi* 'general name of moray eels', TOK *puhi* 'general name for eels', TUV *pusi* '*Gymnothorax*' (Zann 1980), PUK *pui* '*Echidna zebra*', TIK *pusi* '*Gymnothorax* sp., grey brown reef eel', WUV *pusi* 'sorte d'anguille de mer', EAS *puhi (hakanonga)* '*G. bathyphilus* (Randall & McCosker)', HAW, MQS, TAH *puhi*, RAP *puhi* '*Anguilla* sp., freshwater eel', CIM *pu'i* 'a species of large sea eel' (Savage 1962), MAO *puhi* 'a very large variety of eel' (the same as *hao* 'mud eel').

A number of secondary lexemes are recorded for Tokelauan, Hawaiian and Tahitian. In addition to the Easter Island form cited above, Randall and Cea Egaña (1984) cite several secondary lexemes in which *puhi* is a qualifier. The Pukapukan form is presumably a borrowing from Cook Islands Maori.

ANGUILLIDAE

#14 PPN *tuna '*Anguilla* spp., freshwater eel'
PCP *tuna (Geraghty)
TON *tuna* 'k.o. eel including *tuna tahi* (sea eel) and *tuna vai* (freshwater eel)', NIU *tuna* 'freshwater eel', EUV, EFU, SAM *tuna* 'freshwater eel', PUK *tuna wenua* 'freshwater eel'

(lit. 'land eel'), TIK *tuna* 'eel, gen. term applied especially to lake eels' (Firth 1985), TAU *tuna laulau hau* '*Anguilla reinhardti*, freshwater eel', PIL *tuna* '*A. reinhardti*' (both these from Lincoln n.d.b), WFU *tuna* 'freshwater eel', HAW *kuna* 'variety of freshwater eel', TAH *tuna* 'freshwater eel' (Davies 1851 only; the modern term is *puhi pape*), CIM *tuna* 'eel' (general term)

Compare FIJ *duna* 'freshwater eel'. The lack of reflexes from atoll languages can be explained by the lack of a freshwater habitat in those places. Note however, TAU and PIL *tuna* (*laulau hau*) in Lincoln's data.

CLUPEIDAE

#15 PPN **nifa* '*Sardinella* sp.'
PCP **niva* (Geraghty)
EUV *nifa* 'k.o. sardine', MQS *nifa* '*Sardinella marquisensis*', TAH *nifa* 'the name of a spotted fish' (Davies 1851), TUA *nifa* 'juvenile *Albula* sp.'

#16 PPN **sasaa* '*Spratelloides* sp.'
PCP **cacā* (Geraghty)
TON *hahā* 'anchovy' (Rensch 1983), EUV *hahā* (no identification), TOK *hahā* '*Spratelloides delicatulus*', TIK *sā* 'small fish of anchovy type'

#17 PPN **saraa* 'small schooling fish, Clupeiform sp.'
PCP **sarā* (Geraghty)
TON *hā* 'k.o. fish: very small, like whitebait; found in shoals' (Churchward 1959), NUK *salā* 'flying fish', LUA *salā* 'small blue fish', SIK *salā* 'k.o. fish'

#18 PPN **sali(i)* 'small fish, possibly Atherinidae sp.'
TON *helī* 'small k.o. fish', SAM *salī* 'small fish (*Atherina* sp.), k.o. sardine' (Milner 1966), TUV *sali* 'several species of Clupids' (Zann 1980), REN *sagi*

Geraghty (this volume) regards this and #17 as PPN doublets.

HEMIRAMPHIDAE

#19 PPN **ise* 'halfbeak spp., including *Hyporhamphus acutus* (Günther)'
PCP **ije* (Geraghty)
TON, EUV *ihe*, SAM *ise*, TOK *ihe*, TUV *ise*, PUK *ie*, *ieie*, NUK *ise*, KAP *iha*, TIK *ise* 'garfish Belonidae or ?? small crocodile needlefish *Tylosurus crocodilis*. Taken by net on reef, sometimes in very large numbers' (Firth 1985), EAS *ihe*, HAW *iheihe*, MAO *ihe* '*H. intermedius*'; note also *iheihe*, another name for *hakuraa* 'Southern whale'.

Again, the Pukapukan form appears to be a borrowing from Cook Islands Maori, although I have not as yet obtained a Cook Islands Maori reflex. However Kevin Salisbury (pers.comm.) says that sporadic loss of Pukapukan /y/ intervocalically is not uncommon. The description in Firth sounds much more like *Hyporhampus acutus* than the two species mentioned by him.

BELONIDAE, AULOSTOMIDAE, FISTULARIDAE

These families are considered together because the Polynesian names show some semantic shifts from one family to another, doubtless because of the close physical resemblances.

#20 PPN **haku* 'garfish of family Belonidae'
PCP **(c,s)aku* (Geraghty)
TON *haku* 'Belonidae spp.', EUV *haku* '*Tylosurus crocodilis, Strongylura leiura, S. urvili*', SAM *a'u* '*Tylosurus* sp.', TOK *aku* 'needlefish, about 2 feet long', PUK *aku* '*Tylosurus* sp.', *akuaku* '*Platybelone* sp.', KAP *agu* 'large needlefish', REN, TIK *aku* 'general term for needlefish and garfish', WFU *aku* (Fakamuria n.d.), WUV *aku* '?aiguillette, *Hémiramphidé*', EAS *ihe aku* '*Platybelone argalus platyra* (Bennett), to 40 cm. in length', HAW *auau* '*Tylosurus gigantis*' (Jordan & Seale 1906), MQS *aku* 'general term for needlefish and garfish', TAH *a'ua'u* '*Platybelone* sp.', TUA, CIM *aku* 'general term for needlefish and garfish'

The Hawaiian form is probably *a'ua'u*. The phonological evidence justifies the reconstruction of **haku*, as distinct from **saku*, which Walsh and Biggs (1966) proposed for both garfish and swordfish species (see #134). The development of these doublets appears to be a PPN innovation (cf. Proto Fijian **saku* 'Belonidae' and **saku(laya)* 'sailfish').

#21 PPN **taotao* '*Aulostomus* and *Fistularia* spp.'
TON, NTP *tootao* '*Aulostomus* sp.', TOK *taotao* '*Fistularia petimba* (Lacépède), flutefish', PUK *taotaoama* '*F. petimba*', SAM *taotao* '*F. petimba*', *tao tito*, '*Aulostomus* sp.', TIK *taotaoama* 'a mullet', PIL *totoama* '*Tylosurus* sp.', TAU *(temaele) totoama* '*Tylosurus* sp.', WFU *totoama* (no semantic information), EAS *toto amo* '*A. chinensis* (Linnaeus)', MQS *koko'o'ama* (Hiva Oa), *ko'oama* (Fatu Hiva) '*A. chinensis*'

Compare **tao* 'spear'. The distribution of forms containing the segment *-ama* is not readily explicable. Clerk (1981:162) comments that Mangaians regard Aulostomidae and Fistularidae as a single category.

#22 PNP **tupou(pou)* '*Aulostomus valentini* (Bleeker), trumpet fish'
TOK *tupoupou*, PUK *tūpoupou*, HAW *kūpoupou* '*Cheilio inermis*, sharp-nosed wrasse', TAH *(aupapa tohe) tupou*, TUA *(kakavere) tupoupou*, RAP *tupou*

Compare **tuupou* 'bow, stoop'. Only the Hawaiian form shows a semantic discrepancy, which is wide indeed. Although *C. inermis* is more thin and pointed than other wrasses, it shows little resemblance to *A. valentini*. Related to the first morpheme in the Tuamotuan form above are the following: TUA *tātāvere*, *totōviri*, TAH *'a'avere* '*Tylosurus crocodilis*', RAP *tatavere* '*Fistularia petimba*'.

EXOCOETIDAE

#23 PPN **sasawe* 'Exocoetidae, flying fish sp.'
NIU *hahave* 'large flying fish', EFU *sasave* 'poisson volant', SAM *save* 'a young flying fish' (Pratt 1878), TOK *hahave* '*Cypselurus simus*', TUV *ssave, hahave* '*Exocoetus* spp.', NUK *ssave*, KAP *tawe*, LUA *save*, REN *sasabe*, TIK, ANU *save*, TAU, PIL *ave*, WFU *save*, WUV *sasave* 'petit poisson volant', EAS *hahāve* 'Exocoetidae'

All glossed 'flying fish'. The only Eastern Polynesian language to have a reflex of this word is Easter Island, where it is the general term for flying fish; Randall and Cea Egaña

(1984:8) list three species. Phonetic correspondences are regular, except for Kapingamaringi where */s/ > /t/.

#24 PPN *maalolo 'flying fish spp., including *Cypselurus simus*'
TON *mālolo* 'flying fish sp.', EUV *mālōlō* 'generic term for flying fishes', SAM, TOK, TUV, PUK *mālolo*, HAW *mālolo*, MQS *ma'o'o*, TAH, RAP, TUA *mārara*, CIM, MAN *māroro*, MAO *maaroro*

#25 PPN *sipa 'young flying fish'
TON *sipesipa* 'k.o. fish, small, silvery, slimy', NIU *hipa* 'young flying fish', EUV *sipa* 'planer en l'air', SAM *sipa*, TOK *hipa*, TUV *sipa*, PUK *yipa*, KAP *hiba*, TIK *sipa*, CIM *tipa* 'young *māroro*' (Bacquie 1977), MAN *ko'ipa* 'small flying fish'

It seems likely that **maaroro* was the original general term for flying fish, retained even in Maori, and that **sasawe* was a PPN specific term, lost in Tongan, Pukapukan and Eastern Polynesian and generalised elsewhere. Note the irregular correspondence in the initial consonant of the Cook Islands Maori form.

HOLOCENTRIDAE

#26 PPN *malau 'general term for a number of fishes of the genera *Holocentrus*, *Adioryx*, *Myripristis* and *Flammeo*, soldierfishes and squirrel fishes'
PCP **ma(r,l)au* (Geraghty)
TON, NTP, NIU, EUV, EFU, SAM, TOK, TUV, PUK, NUK, KAP *malau*, REN *magau* '*Holocentrus* sp.', TIK *marau* '*Holocentrus spinifer* (Forskål)', ANU *te marau*, WFU *marau* '*Adioryx caudimaculatus* and others' (Fakamuria n.d.), *marauroa*, EAS *mārau*, MQS *ma'au*, *me'au* '*Myripristis* spp.', TAH *marau* (Davies 1851 only, 'name of a small fish')

Note the irregular long vowel in the Easter Island reflex. Many sources list a number of binomials, but only the following one justifies a tentative reconstruction.

#27 PSO *malauloa '*Adioryx* sp., possibly *Adioryx andamanensis* (Day), red squirrel fish'
SAM, TOK, TUV, PUK *malauloa*, WFU *marauroa* (no semantic information)

Both Tokelauan and Pukapukan informants made the identification *A. andamanensis*.

#28 PPN *talakihi, PNP *talatala 'soldier or squirrel fish spp.'
TON *telekihi* 'k.o. fish', NTP *telekihi* '*Adioryx* sp.', *talataha* 'squirrel fish sp.', EUV *telekihi* '*Adioryx* spp.', *talatahi* '*Adioryx furcatus* (Günther)', TOK *talatala* 'violet soldier fish (*Myripristis violaceus*)', TUV *tala(kisi)* '*Holocentrus*', NUK *daladala* 'squirrel fish spp.', MQS *ta'akihi* '*Gnathodentex aureolineatus*, golden-lined sea perch', *ta'ata'a* '*Adioryx caudimaculatus* and *Flammeo* spp.', TUA *tarakihi* 'fish with very sharp dangerous spines' (Stimson 1964), CIM *taraki'i* '*G. aureolineatus*', MAO *tarakihi* '*Nemadactylus macropterus*, jackass fish'

The phonological shape of the Niuatoputapu reflex *telekihi* (as opposed to *talataha*) suggests a Tongan origin, so we can assume the correctness of the PPN identification. Note that *tala* means 'spiny' and that a descriptive origin for the Eastern Polynesian **tarakihi* forms cannot be ruled out. The two species involved do not resemble soldier or squirrel fishes, and although not markedly different in appearance from one another, are not markedly similar either. The New Zealand *tarakihi* has three spines attached to the anal fin – a

feature which the photograph in Bagnis et al. (1972) suggests *G. aureolineatus* may share. Rensch (1988:261) points out that in Mangarevan this name is "in a metathesis relationship with *ta'akari*".

#29 PPN **ta?a* '*Holocentrus* sp., probably *H.spinifer* (Forskål), armoured soldier fish'
PCP **ta?a*, POC **taRa?a* (Geraghty)
TON *ta'a* '*H. spinifer*', NIU *(ika)tā* 'Holocentridae, including *H. spinifer*', TOK, PUK *tā* '*H. spinifer*', NUK, KAP *daa* '*Holocentrus* sp.', TAU, PIL *tā* '*Adioryx* sp.'

#30 PPN **malauta?a* '*Adioryx* sp.'
TON, NTP *malauta'a* '*Adioryx spinifer*', EUV *malau ta* '*A. spinifer* and *A. cornutus* (Bleeker)', SAM, TOK *tāmalau* '*Adioryx caudimaculatus* (Rüppell), white-tailed squirrelfish', TUV *tāmalau* '*Adioryx* spp.', KAP *malau-daa* 'red snapper'.

Note that the order of the morphemes is reversed in Samoan, Tokelauan and Tuvaluan.

#31 PPN **kuru* '*Myripristis* sp.'
PCP **kuru* (Geraghty)
NIU *kū* 'a small red fish' (informant), KAP *gugu* 'fish sp.', HAW *ū'ū* '*Myripristis* sp.', TAH *'ū'ū* 'poisson de couleur rouge' (archaic, replaced by *i'ihi)*, RAP *kū* '*Myripristis* sp.'

Geraghty's PCP reconstruction, supported by Fijian *kuru*, Rotuman *?uru*, allows this semantic reconstruction for PPN.

PRIACANTHIDAE

#32 PPN **matapula* ?'*Priacanthus cruentatus*, red globe-eye'
TON *matapula* 'small fish with protruding eyes', NTP *malaumatapula* (not identified), *matapula* '*Apogon* sp.', EFU *matapuni* 'nom d'un poisson', EUV *matapula* 'Pomacentridae sp.', SAM, TOK, PUK *matapula* '*P.cruentatus*'

Compare PPN **mata* 'eye' and **pula* 'shine, glow'. The first Niuatoputapu form given above, as well as the East Uvean word for *Priacanthus* sp., *(malau) matamu*, reflect the perceptual similarity of *P. cruentatus* and the soldier fishes. *Apogon* species are unrelated to *P.cruentatus*, but do have protruding eyes.

BOTHIDAE

#33 PPN **ali* '*Bothus* spp., flounder'
PCP **(y)ali* 'flatfish' (Geraghty)
TON, NIU, EUV, EFU, SAM, TOK, TUV, PUK *ali* '*Bothus mancus* (Broussonet), left-eye flounder', NUK *halihali paa*, LUA *ali*, REN *agi*, ANU *ari*, TAU, PIL *ali*, WFU *ari*, WUV *ali*

All glossed 'flounder' or '*Bothus* sp.'. This word had been lost in Eastern Polynesian and replaced by a number of different forms.

SPHYRAENIDAE

#34 PPN **ʔono* '*Sphyraena* spp., barracuda'
PCP **ʔono*, POC **qono* 'barracuda'
TON *'ono*, NTP *'ono* 'wahoo', EUV *'ono* 'Sphyraenidae sp., largest growth term', TOK, TUV *ono*, PUK *wono*, NUK, KAP, TIK, TAU, PIL, WUV *ono*, HAW, MQS *ono* '*Acanthocybium solandri*, wahoo', TAH, RAP, TUA, CIM, MAO *ono* '*Sphyraena* sp.'

The semantic shift in Niuatoputapu, Hawaiian and Marquesan is well motivated, as the wahoo is a large predatory ocean fish of similar shape and colouring to barracuda. For *A. solandri*, see #128.

#35 PPN **(s,t)apatuu* '*Sphyraena* spp., barracuda'
TON *hapatū* '*Sphyraena* sp.', NIU *utu* '*S. forsteri* (Cuvier & Valenciennes), sea-pike barracuda', EUV *hapatu* 'immature *'ono'*, SAM *sapatū*, TOK *tapatū* '*S. forsteri* sea-pike barracuda, when young', TUV *tapatū* '*Ablennes hians*, giant needlefish', PUK *tātū* '*S. forsteri*', KAP *dabaduu* 'fish sp.', LUA *kapaku* 'striped barracuda', TAU *tepatu* '*Sphyraenella obtusata*, striped sea-pike', WFU *tapatu* 'barracuda', HAW *kākū* '*Sphyraena barracuda*', MQS *tapatu* (North), *tapatupapa* (North and South), RAP *taputapu* '*Sphyraena* sp.'

The distribution of variants is somewhat confusing. One could propose PNP **tapatuu* except for the existence of the Samoan form with initial /s/. In the Hawaiian and Pukapukan reflexes, /p/ has dropped out between identical vowels, leaving a long vowel.

#36 PPN **saosao* '*Sphyraena* spp., barracuda'
PCP **(s,j)ao(s,j)ao* (Geraghty)
NTP *hahau* 'shark', NIU *haohao* 'sp. of pipefish', EUV *saosao* 'espèce de barracuda', SAM *saosao* 'k.o. fish...predatory and dangerous', TOK *haohao* '*Sphyraena forsteri*, when fully mature', TUV *taotao* '*S. forsteri* and *Fistularia petimba*', TIK *saosao* '*S. barracuda*', EAS *ti'atao* '*S. helleri* (Jenkins)', MQS *kaokao* '*S. forsteri*', TAH *tiatao* '*S. forsteri*'.

Again, puzzling variation in the initial segment (but see comments in Geraghty (this volume)). The mature *haohao* is called *pānanua* in East Uvean and Tokelauan; cf. Kiribati *baniniua*, '*S. barracuda*' (Taumaia & Gentle 1983).

MUGILIDAE

#37 PPN **kanahe* '*Mugil cephalus* (Linnaeus), *Crenimugil crenilabis* (Forskål), and other mullet spp.'
PCP **kanace* (Geraghty), POC **kananse* 'mullet'
TON, NIU, NTP, EUV *kanahe*, EFU *kanae* '*Liza macrolepis* (Smith)', SAM *'anae*, TOK *kanae* '*M. cephalus*', TUV *kanase*, PUK *kanae* '*C.crenilabis*', NUK, KAP *ganae*, LUA *'aŋae* 'white mullet', REN, TIK, WUV *kanae*, ANU *kanai* '*Mugil cephalus*', HAW *'anae*, MQS (Ua Huka only) *kenakenae*, TAH *'anae*, TUA *kanae*, CIM *kanae*, MAO *kanae* '*M. cephalus*'

One of the most widely reflected terms, uniformly glossed as some species of mullet, even in New Zealand Maori. The /s/ in Tuvaluan is an irregularity, as is the final vowel in the Anuta form.

#38 PPN *?aua 'mullet sp., ?*Neomyxus chaptalii* (Eydoux & Souleyet), silvery mullet'
PCP *?aua 'juvenile mullet' (Geraghty), PAN *qawas '*N. chaptalii*'
TON *'aua*, NTP *'aua*, EUV *'aua* 'growth term of *kanahe*', *auamui* '*Liza* sp.', EFU *aua* '*Mugilidae* sp.', SAM *aua*, TOK *aua* '*N. chaptalii*', PUK *aua* 'probably *M. cephalus*', *uwoa* '*N. chaptalii*', KAP *huoua* 'young mullet', WUV *aua* 'petit mulet, *Mugilidé*', HAW *uouoa* '*N. chaptalii*', MQS *kaoa* (South only) 'mullet sp. including *N. chaptalii*', TAH *auoa*, RAP *aua(ree)* '*M. cephalus* when small', TUA *uoa*, CIM *aua* (2 inches), *uoa* (24 inches), MAN *auaaua*, *aua* 'growth terms for *kanae*', MAO *aua* '*Aldrichetta forsteri*, yellow-eye mullet'

This is a disconcerting jumble, but the PAN reconstruction lends support to the reconstruction of PPN *?aua. We can perhaps guess at PNP *uoua, since both terms exist in Cook Islands Maori. Possibly the Tahitian and Hawaiian reflexes are a blending of the two forms.

#39 PPN *fua(fua) 'mullet sp., probably juveniles'
TON *fua* 'mullet', NIU *fuafua* 'mullet, juvenile', TOK *fuafua(ika)* 'mullet, juvenile'

#40 PPN *kafa '*Mugil vaigiensis* (Quoy & Gaimard), diamond-scaled mullet'
PCP *kava '*M. vaigiensis*', PEO *KaRava (Geraghty)
NTP *kafakafa*, EUV *kafakafa*, SAM *'afa*, TOK *kafa*, PUK *kawa*, TAU *kaiva*, WFU *kafa* (no identification), MAN, CIM *ka'a*

Perfect semantic correspondence for this species, and perfect phonetic correspondence except for the Taumako form.

POLYNEMIDAE

#41 PPN *kumikumia ?'*Polydactylus sexfilis* (Cuvier & Valenciennes), *P. plebeius* (Broussonet), threadfin'
TON *kumikumia* 'k.o. fish', NTP *kumikumia* '*P. sexfilis?*' (Dye 1983), SAM *'umi'umia* '*Polydactylus* sp.' (Milner 1966), TOK *kumikumia* 'fish similar to yellow Moorish Idol (*Zanclus cornutus*)', TIK *kumikumia* '*P. sexfilis*', ANU *kumikumi* '*P. plebeius*', TAU *kumikumia* '*P. plebeius*', WUV *kumikumia* 'espèce de barbillon non-id.', MQS *kumia* '*P. sexfilis*'

Compare PPN *kumikumi 'beard, chin'. The Tokelauan word for *P. sexfilis* is *avaava*, also meaning 'beard'.

SERRANIDAE

#42 PPN *faapuku '*Epinephelus* sp., possibly *E. microdon* (Bleeker), marbled sea bass'
TON *fāpuku* '*Epinephelus merra* and other small cod', EUV *fāpuku* 'generic term for *Epinephelus* sp.', TOK *fāpuku* '*E. microdon*', PUK *wāpuku* '*Epinephelus* sp.', NUK *sahudu* 'bass sp.', EAS *kōpuku* 'Serranidae spp.', HAW *hapu'u (pu'u)* '*E. quernus*', MVA *hapuku*, TAH *hapu'u* '*E. microdon*', RAP *apuku* '*E. microdon*', MAN *'apuku* 'large, rare, brown and black mottled', MAO *haapuku, whaapuku* 'grouper *Polyprion oxygenios*'

Note the irregular first syllable of the Easter Island reflex. *E. quernus* is the only member of this genus found in Hawaiian waters, according to Jordan and Evermann (1973[1903]:165). The description of MAN *'apuku* is consistent with *E. microdon*. The New Zealand Maori species is a member of Percichthyidae, the same suborder as Serranidae, and

has a similar appearance and habitat. Note also MAO *matua whaapuku* 'scorpion fish, grandfather hapuku'.

#43 PPN **munua* 'large *Epinephelus* sp.'
PCP **munua* (Geraghty)
TON *munua* 'k.o. fish, very large', EUV *munua* '*Variola louti*', TOK *munua* 'large *Epinephelus* sp.'

#44 PPN **tonu* '*Plectropomus leopardus* (Lacépède), *P. maculatus* (Bloch), coral trout'
PCP **donu* (Geraghty)
TON *tonu* '*P. Leopardus* and other varieties when large', NTP *tonu(mea)* 'grouper', EUV *tonu* '*Plectropomus* spp.', EFU *tonu* 'nom d'un poisson', SAM *tonu* '*Epinephelus* sp., 3 feet long or more' (Milner 1966), TOK, TUV, PUK *tonu* '*P. leopardus*', KAP *donu* 'sea-bass sp., TIK, ANU *tonu* '*P. leopardus*', TAU *tonu* '*Variola louti*', WFU *tonu* '*Plectropomus* and *Cephalopholis* spp.' (Fakamuria n.d.), WUV *tonu* '*Serranidé*', TAH, RAP *tonu*

Plectropomus can reach 3 feet in length and a weight of 30 lbs. Several of the glosses mention the size of *tonu* as compared to other smaller species of Serranid.

#45 PPN **ŋatala* '*Epinephelus* and *Cephalopolis* spp.'
PCP **gwajala* (Geraghty)
TON, NTP *ngatala* '*Epinephelus* and *Cephalopolis* spp.', NIU *ngatala* '*Epinephelus,* smaller spp.', EUV *gatala* 'generic term for *Epinephelus*', SAM *gatala* '*Epinephelus* spp.', TOK *gatala* '*Epinephelus merra* (Bloch), honeycomb sea bass', TUV *ngatala* '*Epinephelus* spp.', NUK, KAP *ngadala* 'general name for *Epinephelus* spp.', REN *ngataga* 'general name for rock cods', TIK *ngatara* '*E. tauvina*', ANU, TAU *ŋatara* '*Epinephelus* spp.', WFU *gatara (kosi)* 'small brown dotted fish', TAH *'atara* '*Epinephelus socialis*'

A number of secondary lexemes denoting species are recorded for Niuatoputapu, East Uvean and Kapingamarangi. This word seems to have dropped out of Eastern Polynesian languages except for Tahitian, where it is used for a comparatively uncommon species.

#46 PNP **faaLoa* '*Epinephelus* sp., probably *Epinephelus tauvina* (Forskål), spotted sea bass'
EUV *faloa* '*Anyperodon leucogrammicus* (Valenciennes)', TOK *fāloa*, PUK *wāloa*, MQS *ha'oa*, TAH *fāʳoa*, RAP *haroa*, TUA *fārōa, hāʳōa*, CIM (Mangareva) *'aroa*

All are glossed *E. tauvina*, except for East Uvean.

#47 PPN **loi* '*Cephalopolis* spp., primarily *C. argus* (Bloch & Schneider), blue-spotted grouper'
NIU, TOK, PUK, TUV *loi* '*C. argus*', WFU *roi* (no identification), TAH, RAP, TUA *roi* '*C. argus*', MAN *ro'i*, CIM *(patuki) roi* '*C. argus*

The glottal stop in the Mangaia reflex is irregular.

#48 PNP **(w)ewe* '*Epinephelus hexagonatus* (Bloch & Schneider), orange sea bass'
TOK *eve*, PUK *eve*, TUA *veve* '*E. hexagonatus* and *E. merra*'

This is a quite distinctive species because of the hexagonal shape of the spots, and the five dark blotches on the back.

KUHLIIDAE

#49 PPN **safole* 'fish sp.', **PNP **safole*** 'marine *Kuhlia* spp., flagtail'
TON *hofole* (no identification), NTP *hāfole* '*K. mugil*', SAM *safole* '*Kuhlia* sp.', TOK *hāfole* '*K. taeniura* (Cuvier), flagtail, and *K. marginata* (Cuvier), tropical bream', TUV *safole* '*Kuhlia* sp.', PUK *ayole* '*Kuhlia* sp.', NUK *sahole* 'mountain bass', LUA *ahali* 'flagtail surgeon fish', TIK *safore* '*Kuhlia* spp.', TAU *hole* '*Megalops cyprinoides*, oxeye herring' (Lincoln n.d.b), EAS *māhore* '*K. nutabunda* (Kendall & Radcliffe)', HAW *aholehole* '*Kuhlia* sp.', MQS *hoho'e* '*Kuhlia* spp.', KAP *ahore*, TUA *ahore* '*K. sandwichensis*', MAN *a'ore*

In the absence of a gloss for the Tongan form one cannot make a species identification at PPN level. However, PNP **safole* must certainly have been *Kuhlia*. Note the irregularity in the Pukapukan, Luangiua and Hawaiian reflexes of */f/*, and the first syllable of the Easter Island form. East Uvean has a form *mafole*, glossed 'growth term for *Caranx*'.

#50 PPN **seseLe* 'juvenile *Kuhlia rupestris*'
PCP **sesere* (Geraghty)
EUV *hehele* '*Kuhlia rupestris* (Lacépède), a freshwater fish', SAM *sesele* 'name given to a freshwater fish (*Kuhlia* sp.) when immature'

CIRRHITIDAE

#51 PPN **patuki* 'fish sp.', **PPN **'ulutuki*** '*Cirrhites pinnulatus* (Bloch & Schneider), hand-fish'
PNP **patuki* '*Cirrhites* and *Paracirrhites* spp., hand fish'
TON *patuki* 'fish sp.', *'ulutuki* '*C. pinnulatus*', NTP *'ulutuki*, NIU *ulutuki* '*C. pinnulatus* and *P. hemistictus*', SAM *ulutu'i* '*C. pinnulatus*', TOK *patuki* '*C. pinnulatus*', *patuki laufala* '*P. hemistictus*', TUV *pātuki* '*C. pinnulatus* and *Parachirrhites* spp.', PUK *pātuki*, NUK *ulu-dugi*, KAP *leduge*, TIK *urutuki*, EAS *pātuki* '*Cirripectes alboapicalis* (Ogilby), blenny', HAW *pakuʻikuʻi* '*Acanthurus achilles*, surgeon fish', MQS *patuki*, TAH *patu'i* '*C. pinnulatus* and *P. arcatus*', TUA *paratuki*, CIM *patuki(toka)*, MAO *paatutuki* '*Parapercis colias*, rock cod'

Pending further semantic information on the TON *patuki*, we cannot assign a species identification to the PPN form. Possibly one word was the generic term, the other a specific. In spite of two irregular vowel correspondences in the Kapingamarangi form, it seems to be related to **ulutuki*. The Easter Island and Hawaiian forms show semantic shift to markedly different species. Randall and Cea Egaña (1984) do not give an Easter Island word for *Cirrhites*, but the Hawaiian word is *po'opa'a* or *'o'opu*. Note also EUV *pataki* '*Synodus variegatis*, lizardfish (Lacépède)'. The New Zealand Maori form shows a reasonably well-motivated semantic shift: the blue cod has a comparable habitat and somewhat similar length and appearance to *C. pinnulatus*.

CARANGIDAE

#52 PPN **ʔulua* '*Caranx* sp., probably *C. ignobilis* (Forskål), big-headed jack'
TON *'ulua* 'very large *Caranx*', NIU *ulua* 'large *Caranx*, of the four species listed above', EUV *'ulua* '*C. ignobilis*, big-head jack', EFU *ulua* '*C. ignobilis*', SAM *ulua* '*Caranx* sp.,

three feet long', TOK, TUV, PUK *ulua* '*C. ignobilis*', NUK, KAP *ulua* 'trevally', REN *'ugua* 'general name for trevallies', TIK *urūa* 'large carangids, of predatory habit', TAU *ulua* '*Caranx* sp. and *Gnathonodon speciosus*, golden trevally', HAW *ulua* 'general name for *Caranx* sp.', MQS *u'ua* '*C. ignobilis*', TAH *uruati* '*C. ignobilis*', RAP *urupiti* '*C. ignobilis* (lit.'head-two')', TUA *urua*, CIM *urua* 'largest growth term for *C. sexfasciatus*'

See above, for a discussion of this and other names of *Caranx* spp.

#53 PPN **tafaʔuli* '*Caranx* sp., possibly *C. lugubris*'
TON *tafa'uli* 'large *Caranx* of any species', NIU *tafauli* 'a fish', EUV *tafa'uli* '*C. melampygus*', TOK *tafauli* '*C. lugubris*', TUV *tafauli* '*C. lugubris*, PUK *(lui) tawauli* '*C. lugubris*, large', LUA *kahauli* 'trevally sp.', REN *taha'ugi* 'k.o. large fish', TIK *tafauri* '*C. melampygus*', HAW *kaha'uli* 'refers to some kinds of *ulua* and some small tuna'

Compare PPN **ʔuli* 'black'. In Eastern Polynesian languages other than Hawaiian, this term has been replaced by reflexes of PCE **ruhi* (see below), everywhere glossed *C. lugubris*. Note that Pukapukan contains both terms, *lui* possibly as a result of contact with Cook Islands Maori. It is applied to the juveniles of this species.

#54 PEP **luhi* '*C. lugubris*'
PUK *lui*, EAS *ruhi*, MQS *'uhi*, TAH, RAP, TUA *ruhi*, MAN, CIM *ru'i*

#55 PPN **lupo(lupo)* '*Caranx* spp.'
TON *lupo* 'mature *Caranx*', *lupolupo* 'juvenile *Caranx*', NTP *lupo* '*C. ignobilis*', *lupolupo* (no semantic information), NIU *lupolupo* 'juvenile *Caranx* spp.', EUV *lupolupo* 'juvenile of *'ulua'*, *lupo* 'second growth stage of *'ulua'*', SAM *lupo* 'juvenile *Caranx* spp. 2-3 inches', *lupo(tā)* '*Caranx* spp. 6 inches', TOK *lupolupo* 'juveniles of all *Caranx* spp.', TUV *lupo, lupolupo* '*Gnathodon speciosus* (Forskål), golden jack' (Zann 1980), *lupo(laga)* 'juvenile *Caranx*', *lupo(sama)* '*Caranx* sp.' (Besnier 1981), PUK *lupolupo* 'juvenile *Caranx*', *lupo* 'juvenile of *C. melampygus* and *C. ignobilis*', LUA *lupu* 'great trevally', REN *gupo* 'juvenile *Caranx*', WUV *lupo* 'poisson gros et large', HAW *ulupō* 'juvenile of *ulua* ', MQS *'upo'upo* '*Carangoides gilberti* striped jack', TAH *rupo* 'name of a little fish' (Davies 1851 only), TUA *rupo* '*C. melampygus*', MAN *riporipo* 'juvenile *Caranx* spp.'

The use of the reduplicated form for juveniles can probably be assumed for PPN. Note irregularity of the final vowel in the Luangiua and Hawaiian forms, and first vowel of the Mangaia form, and excrescent initial vowel in Hawaiian.

#56 PNP **komuli* '*C. sexfasciatus* (Quoy & Gaimard), horse-eye jack'
TOK *komulo*, PUK *kōmuli*, HAW *omilu* '*C. melampygus*', TAH *'omuri*, RAP *omuri* '*Carangoides ferdau* (Forskål)', TUA *komuri*, CIM *komuri*, '*C. lugubris*' (Bacquie 1977)

Unless noted otherwise, all reflexes denote *C. sexfasciatus*. Note the irregularity in the final vowel of the Tokelauan form. The Hawaiian form shows metathesis of the second and third vowels as well as semantic shift to a similar species.

#57 PPN **aseu* '*Caranx* sp.'
NIU *aheu* 'seasonal fish which pursues *kaloama* and *atule'* (McEwen 1970), 'Jack or trevally between 12 and 20 inches in length' (informant), TOK *aheu* '*C. melampygus*', TUV *asseu* (Besnier 1981), *aseu* (Zann 1980) '*Caranx* spp.', PUK *āyeu* '*C. melampygus*', LUA *ausihu* 'golden trevally'

The description in McEwen's (1970) dictionary is consistent with the habits of *C. melampygus*.

#58 PPN *teu '*Caranx* sp.'
PCP **jeu* '*Caranx* sp.' (Geraghty)
TUV, TIK *teu* '*Caranx* spp.', ANU *teteu* '*Caranx sansun* (Forskål), Papuan trevally'

#59 PPN *kata '*Caranx* spp., or growth term for *Caranx*'
PCP **i-kata* (Geraghty)
NIU *(ulua)kata* 'large *Caranx*', EUV *katakata* 'unidentified Scombridae', SAM *'ata* 'large predatory fish which chase *atule*' (Milner 1966), TOK *kata* 'large sized *C. melampygus* and *C. sexfasciatus*', PUK *kata* '*Epinephelus* spp.', NUK *gada* '*Caranx* spp.', KAP *gada* '*Caranx* spp.'

Of interest also are EUV *kāta* 'archaic, troupe de poissons' (Rensch 1983), EFU *kata* 'troupe de poissons', TIK *kata* 'large', and two other Tokelauan meanings of *kata*: 'school of black jacks or school of sharks' and 'a skipjack which seeks refuge or protection by the side of a fishing canoe when it is being pursued by a larger fish'.

#60 PPN *filu 'Carangidae sp.'
PCP **vilu* (Geraghty)
TON, NTP *filu* '*Caranx* sp.', EUV *filu* 'Carangidae spp.'

Like **teu*, this term is of very limited distribution in Polynesia, but the reconstruction is supported by cognates in Fijian and Gitua.

#61 PNP *alaala(futu) 'Carangidae spp.'
EUV *alaala* '*C. fulvoguttatus* (Forskål)', EFU *alaala(muli)* 'nom d'un poisson', SAM *alaalafutu, lalafutu* '*Caranx* sp.', TOK *alaala* '*Carangoides gilberti*, striped jack', *alaalafutu* '*Gnathanodon speciosus*, golden jack', PUK *lālāwutu* '*Gnathanodon speciosus* and possibly *C. gilberti*', NUK *alaala* 'two species of jack', KAP *alaala* '*C. melampygus*', TIK *arārafutu* 'sea fish of snapper type', TAU *te alala* '*Scomberoides lysan, Trachinotus bailloni*', MEF *raara* '*Caranx* sp., smallest stage', MAN, CIM *(titi)ara* '*Caranx* spp.', MAO *araara* '*Caranx georgianus* and other Carangidae spp.'

The loss of initial /a/ in Mele Fila is regular. The species identifications given by Lincoln (n.d.b) for the Taumako form are both Carangidae and both silver with black dots, but otherwise there is little resemblance between them.

#62 PPN *soke(lau) '*Caranx* sp.', PNP **soke* '*Trachinotus bailloni*, pompano or swallow-tail jack'
TON *hokelau* 'black pomfret', EUV *hokelau* '*Carangoides gilberti*', TOK *hoke*, PUK *yoke*, MQS *hoke*, TUA *hoke* '*Trachinotus bailloni*', MAO *hoki* '*Macruronus novaezelandiae* (Merlucciidae)'

A sound species-level identification for PNP. The reflexes show perfect phonetic and semantic correspondence except for the New Zealand Maori word, which refers to a quite dissimilar fish, related to the hake, and should perhaps not be included here, given the discrepancy in the final vowel.

#63 PNP *pakewa '*Carangoides ferdau jordan*, black-spot jack'
TOK *pakeva*, PUK *pakeva*, TUA *pakeva*

As with the previous set, there are not many reflexes but they are widely distributed geographically. See also Clerk (1981:177).

#64 PPN **ʔatuʔalo '*Megalaspis cordyla*'
TON *'atu'alo*, EUV *'atu'alo* '*Euthynnus* sp. (Scombridae)', SAM *atualo*, TOK *atualo*

Another very small set. It is possible that the East Uvean word may refer to more than one variety of fish.

#65 PPN **lai '*Chorinemus tol* (Cuvier & Valenciennes), slender leather-skin'
PCP **laci* (Geraghty)
TON *lai* 'fish sp.'; NTP *lai* 'leatherback', NIU *lai* 'fish sp.', EUV *lai* '*Euthynnus affinis* (Cantor)', SAM, TOK, PUK, LUA *lai*, REN *gai* '*Chanos chanos*', TIK *rai*, HAW *lai*, MQS *'ai'ai*, TAH, TUA *rai*, MAN *rai* '*Trachinotus bailloni*', '*C. ferdau*', CIM *rai*.

Reliable glosses have not been obtained for Tongan and Niuatoputapu. The Rennellese form represents a marked semantic shift. Otherwise most glosses point to *Chorinemus tol*, so that we can certainly make this identification at PNP level, possibly at PPN.

#66 PPN **ʔatule '*Selar crumenopthalmus* (Bloch), silver scad'
PAN **qatulay* '*Trachurops* sp.'
TON *'otule*, NIU *atule*, EUV *'atule*, SAM, TOK *atule*, TUV *atule* '*Decapterus pinnulatus*', PUK *atule*, KAP *adule*, TIK *ature*, WFU *eture* 'scad or mackerel', EAS *ature*, HAW *akule*, MQS *etu'e*, TAH *ature*, CIM *atur*, MAO *haature, hauture* '*Trachurus novaezelandiae*, jack or horse mackerel'

One of the more important food fish and one of the most widely distributed fish names. The New Zealand Maori form shows phonological changes in the first syllable but the species are closely related.

#67 PPN **huli, PNP **ulisega* ?'fusilier sp. or mackerel sp.'
TON *huli* 'k.o. fish' (Churchward 1959), NIU *ulihenga* 'a fish, herring' (McEwen 1970), 'mackerel' (T.Ryan, pers.comm.), TOK *uli* '*Decapterus pinnulatus* (Eydoux & Souleyet), mackerel scad', *ulihenga* '*Pterocaesio tile* (Cuvier & Valenciennes), tricoloured fusilier', PUK *uli* '*P. tile*, adult' (K. Salisbury, pers.comm.), TAU *uliuli* '*Aprion* sp., rosy Job fish' (Lincoln n.d.b), (TAH *uri* '*Naucrates ductor*, pilot fish')

Not much to go on here, just a puzzling network of tenuous semantic connections. Clerk (1981:143) comments on the resemblance between *P.tile* (a Lutjanid) and the scads; Mangaians perceive them as similar in both appearance and behaviour. Geraghty (this volume) reconstructs PPN **suli* [sic] and PCP **(c,s)uli* '*Caesio* sp.', on the basis of TON *huli*, SAM *ulisega*, and FIJ *(c,s)uli(c,s)uli*. The Tongan and Samoan reflexes would support a PPN reconstruction of **huli*, since for PPN **s* one would expect Samoan /s/, but I have been unable to obtain semantic information on the Tongan form which would help in establishing a reliable species identification for PPN. As Geraghty points out, if the two forms are cognate, NIU *ulihega* is probably a borrowing from a Nuclear Polynesian language. *Decapterus* is an important food fish in Eastern Polynesia (see below, **kopelu*); in Tokelauan it is valued most as a bait for tuna fishing. Unfortunately I have not been able to find words for this species in any other Western Polynesian language except Tuvaluan, where it is called *atule*, elsewhere the name for *Selar crumenophthalmus*.

The TAH *uri*, '*N. ductor*', belongs to the same family as *Decapterus* (see Tokelauan reflex) but bears little resemblance to it, and a more likely source for the name can be found in the set **talitaliʔuli* (see #100).

Note in addition to the above, MQS (Ua Huka) *ku'io* '*Pterocaesio* sp.' and TAH *'urio* '*P. tile*'.

#68 PEP *kopelu '*Decapterus* spp.'
PUK *kōpelu*, HAW *'opelu*, MQS *kope'u* 'sorte de poisson' (Dordillon 1931), *'operu* '*Decapterus* sp.' (Lavondès 1977), TAH *'operu*, TUA *koperu*, MAN, CIM *kōperu*, MAO *kōheru* '*Decapterus koheru*'

Found in Eastern Polynesian languages and in Pukapukan. The New Zealand Maori term has an irregular correspondence in the second consonant, but the species very closely resembles *D. pinnulatus*. Pukapukan, Cook Islands Maori and New Zealand Maori have a long *ō* in the first syllable.

#69 ?PNP *kamai '*Elagatis bipinnulatus*, rainbow runner'
TOK, TUV, PUK *kamai*; note also KIR *kamaa* (Taumaia & Gentle 1983).

A fish name which I have found only in these four languages, but with perfect semantic correspondence. Given the possibilities of diffusion, I am only tentatively suggesting a reconstruction.

CORYPHAENIDAE

#70 PPN *masimasi '*Coryphaena hippurus*, dolphin fish'
TON NTP *mahimahi*, EFU *masimasi* 'nom d'un poisson', SAM *masimasi*, TOK *mahimahi*, TUV *masimasi*, KAP *mahimahi*, TIK *masimasi*, HAW, MQS *mahimahi*, CIM *ma'ima'i*

Widely distributed term for this notable fish. The Pukapukan innovation is fittingly distinctive: *kanakanālangi.*

CAESIONIDAE

#71 PPN *tikawa 'fish sp.'
PCP **tikawa* '*Caesio* sp.' (Geraghty)
SAM *ti'ava*, TOK *tikava* 'tuna baitfish, *Mulloidichthys* sp.' (Gillett 1985), TIK *tikava* 'small marine fish (perhaps *Amentum* sp.)' (Firth 1985).

The PPN form is reconstructed on the basis of Geraghty's data. As the Tokelauan reflex is the only one for which I have reliable semantic information, it is impossible to suggest a species identification for PPN. For Caesionidae, see also the discussion under #67, **huli* and **uliseŋa.*

LUTJANIDAE

#72 PPN *taŋaʔu '*Lutjanus* spp., red or yellow in colour'
TON, NTP *tanga'u* '*L. fulvus* and other snapper spp.', EUV *taga'u* '*L. fulvus* (Schneider), *L. rufolimentus* (Valenciennes)', SAM *tagau* '*L. marginatus*', TOK *tagau* '*L. vaigiensis*, yellow margined sea perch', PUK *tangau* 'a red snapper', *ngatau* '*L. vaigiensis*', NUK, KAP *dangau* 'general name for snappers', TAH *to'au* '*L. vaigiensis*', TUA *tagau* '*L. bohar*', MAN *tangao* '*L. monostignus* and other yellowish *Lutjanus* spp.', CIM *tangau* '*L. bohar, L. gibbus, L. rivulatus*

See section 4 for a discussion of this and the following four cognate sets. The metathesised Pukapukan form was supplied by K. Salisbury (pers. comm.).

#73 PPN **sa(a)putu* '*Lutjanus* sp.'
PCP **(c,s)abutu* '*Lutjanus* or *Lethrinus* sp.' (Geraghty)
TON *hoputu* '*Lethrinus miniatus*, possibly also *Lutjanus gibbus*', EUV *hoputu tokelau* '*Lethrinus chrysostomus* (Richardson)', TOK *hāputu* '*Lutjanus rivulatus*, Maori snapper', NUK *saabudu* 'fish sp.', TIK *saputu* '*Lethrinus kalopterus*', TAH *haputu* '*L. rivulatus*', TUA *haputu* '*Cephalopolis argus*, blue spotted cod', CIM *'aputu* '*Kuhlia sp.*'

The Tahitian word is given in Bagnis et al. (1972) but does not appear in any of the dictionaries. The Cook Islands Maori form is included on the basis of identifications from Mangaia (Bacquie 1977) and Aitutaki (K. Salisbury, pers.comm.), and manifests a marked semantic shift, as does the Tuamotuan reflex.

#74 PPN **faŋamea* 'red *Lutjanus* spp., especially *L. bohar* red snapper'
TON, NIU *fangamea* '*L. bohar*', EUV *fagamea* 'growth term of *L. bohar*', EFU *fagamea* 'poisson vénimeux', TOK *fagamea* '*L. bohar*', PUK *wanga(tua)* '*L. bohar*', *(malau) wangamea* 'largest size of *malau*', NUK *angamea* 'large *dada*' (i.e. a snapper sp.), REN *hangamea* '*L. coatesii*', TIK *fangamea* '?*L. bohar*', MQS *haka* (North), *fana* '*L. bohar*' (South), TAH *ha'amea* '*L. bohar*', TUA *fangamea* '*L. bohar*', MAN *'angamea*

Very good semantic and phonetic correspondence across a wide area. The *-mea* is dropped in Pukapukan and Marquesan; cf. PPN **mea* 'red'.

#75 PPN **ta?iwa* '*Lutjanus monostignus*, black spot snapper'
PCP **taciwa* '*Lutjanus* sp.' (Geraghty)
NTP *ta'iva* ? 'snapper', SAM *taiva* '*Lutjanus* sp.', *taiva uliuli* '*L. monostignus*', TOK *tāiva*, TUV *taiva*, PUK *tāiva*, MQS, TAH *tāivaiva*, all glossed '*L. monostignus*'

Very consistent glosses, and the glottal stop in the Niuatoputapu reflex suggests a Tongan origin, but pending more detailed semantic information from Niuatoputapu, the PPN identification must remain tentative.

#76 PPN **taae?a* '*Lutjanus* sp., probably *L. gibbus*'
PCP **taae?a* '*L. gibbus*' (Geraghty)
EUV *tāe'a* '*L. fulviflamma* Forskål', TOK *tāea* '*L. gibbus*, paddle-tail snapper', TUV *taea* '*L. fulvus* (Zann 1980), *L. gibbus* (Zann 1980; Taumaia & Gentle 1982)', PUK *tāea* '*L. gibbus*', NUK, KAP *daaea* 'snapper sp.', MVA, TAH (ISLV), TUA *tāea* '*L. gibbus*', CIM *taea* '*L. monostignus*'

As with the previous set, the glottal stop in the East Uvean word suggests a Tongan origin, thereby raising the possibility of a PPN reconstruction.

#77 PPN **t(a,o)kape* '*Lutjanus kasmira*, blue-lined sea perch'
PCP **takabe* '*L. kasmira*' (Geraghty)
KAP *dagabe* 'fish sp.', TIK, ANU *tokape* '*L. carponotatus*', TAU *takape* '*L. kasmira*', HAW *ka'ape'ape(hā)* 'deep sea fish said to resemble the *moano*', MQS *kokape, tekape*, (North), *te'ape* (South), TAH *ta'ape* '*L. kasmira*', RAP *takape* '*L. kasmira*'

On the basis of the Fijian reflex cited by Geraghty, we can take this to be the earliest PPN specific term and #78 an innovation, either a variant in PPN or arising later and spread by borrowing.

#78 PPN **sawane* '*Lutjanus kasmira*, blue-lined sea perch'
TON, NTP *havane*, EUV *havane* '*Lutjanus* spp.', SAM *savane*, TOK *havane*

Limited distribution, but perfect semantic correspondence; a fish of very distinctive appearance.

#79 PPN **muu* '*Monotaxis grandoculis* (Forskål), tropical porgy'
PCP **muu* (Geraghty)
TON, NTP, EUV, SAM, TOK, TUV, PUK, NUK, KAP, REN, TIK, HAW, MQS, TAH, TUA, MAN *mū* '*Monotaxis grandoculis*', MAO *muu*, synonym of *mohi* 'a sea fish'

No doubt at all about this one. The solitary nonconformist is Niuatoputapu, where the term for this species is *hikuila*. In Nukuoro, and possibly elsewhere, the name *muu* is used for a number of snapper varieties in addition to *M. grandoculis* (Carroll & Soulik 1973).

#80 PPN **ʔutu* '*Aprion virescens* (Valenciennes), grey jobfish'
PCP **ʔuto* (Geraghty)
TON *'utu*, NIU *utu* '*Sphyraena forsteri*, barracuda', EUV *'utu*, TOK, TUV *utu*, PUK *palu wutu*, NUK, KAP *udu*, REN *utu*, HAW *uku*, MQS, TAH *utu*

All reflexes except the Niuean refer to *A. virescens*. For the Pukapukan form, cf. PPN **palu* (below), and see also Hooper (1991).

#81 PPN **palu* '*Aphareus furcatus*, small-toothed jobfish', '*Etelis carbunculus*, squirrel fish snapper', '*Pristipomoides argyrogrammicus*, big-eyed snapper' and '*Tropidinius zonatus*, flower snapper'

Reflexes are recorded from the following languages: TON, NIU, EUV, EFU, NTP, SAM, TOK, TUV, PUK, NUK, KAP, TIK, ANU, MQS, TAH, TUA, RAP, CIM. The names of these fish species are usually binomial terms, of which a reflex of **palu* is the head (e.g. NIU *palu heahea*, TOK *palu hega*, PUK *palu yengayenga* 'flower snapper'). See Hooper (1991) for a detailed account of the distribution of these terms and the fishing methods associated with this group of deepwater fish species, and see also section 4.

LETHRINIDAE

#82 PNP **fiLoa* '*Lethrinus sp.*'
TON *filu* '*Carangidae* spp.', SAM *filoa ava* '*Lethrinus miniatus* (Schneider), long-nosed emperor', TOK, TUV *filoa* '*L. miniatus*', PUK *yīloa* '*L. miniatus*', NUK *hiloa* 'fish sp.', KAP *hiiloo* 'fish sp.', TIK *firoa* '*Lethrinus* sp.', TAU *hiloa* '*Lethrinella variegata*' (Lincoln n.d.b), WFU *firoa muru* (Capell 1984), CIM *'iroa* '*L. miniatus*

The Tongan form may or may not be cognate. The Cook Islands Maori reflex allows us to make a PNP reconstruction. Elsewhere in Eastern Polynesia the name of this fish seems to be a local innovation.

#83 PPN **ŋutula* '*Lethrinus* sp.'
PCP **gu(j,t)ula* '*Lethrinus* sp.' (Geraghty)
TON *ngotula* 'k.o. fish', TOK *gutula* '*L. miniatus*, juveniles', TUV *gutula* '*L. variegatus*' (Zann 1980), NUK *ngudula* 'snapper sp.', PIL *ŋutula* '*Lethrinella miniata*' (Lincoln n.d.b), WUV *ngutula* 'poisson au bec rouge et ressemblant au bec de cane'

The PCP reconstruction allows us to make a PPN identification (cf. *gutu* 'mouth', possibly a reference to the head shape of *L. miniatus*). However this shape is not so pronounced in the case of *L. variegatus*.

#84 PPN **kulapo* 'fish sp.'
PAN **kurapu(q)*, POC **kurap(o,u)* 'fish sp.' (Blust 1972a), PCP **kulabo* '*Lethrinidae* sp.' (Geraghty)
TON *kulapō* 'k.o. fish' (Churchward 1959), TON, NTP *kulapo* 'fish sp.' (Dye 1983), EUV *kulapo* '*Lethrinus nematacanthus* (Bleeker)', SAM *ulapo* 'lighter coloured species of genus *Scarus* (parrot-fishes) when about 6 inches long' (Milner 1966), *'ulapo* 'full-grown parrot fish' (Goo & Banner), TOK *kulapo* '*Scarus harid* (Forskål), juvenile'

A very puzzling set, with marked semantic change in the Samoan and Tokelauan reflexes. Milner gives the Samoan form without an initial glottal stop, but the near identity of the Samoan and Tokelauan glosses suggests that the correct form is *'ulapo*, as in Goo and Banner (1963) (though with a different gloss!). I have been unable to establish a reliable identification for the Tongan form, although one source (Pond n.d.) gives "?Carodon Schlegeli" (cf. #110).

#85 PEP **ta(a)mule* '*Lethrinus* sp.'
PUK *tāmule* '*Lethrinus mahsena*, Tuamotu emperor', MQS *tamue* 'poisson' (Dordillon 1931), TUA, RAP, CIM *tamure* '*Lethrinus* spp.', MAO *taamure* '*Chrysophrys auratus*, snapper'.

One of several names which Pukapukan shares with Eastern Polynesian languages. The semantic shift in New Zealand Maori is a well-motivated one; *Lethrinus* spp. are not caught in New Zealand waters, but *C. auratus* has a similar habitat and characteristics.

#86 PPN **maŋaa* 'fish sp.'
TON '*Lethrinus variegatus*, variegated emperor'

Note: this fish name is widely reflected in Eastern Polynesia, with the referent *Promethichthys prometheus*, snake mackerel (see #127). In habitat and appearance the two species differ markedly, and the evidence does not allow us to make a more precise semantic reconstruction at PPN level.

PEMPHERIDAE

#87 PNP **manifi* 'fish sp.'
PSO **manifi* '*Pempheris oualensis*, sweeper'
NTP*mānifi, mānifi matapula* 'fish sp.', WFU *manifi* 'fish sp.', SAM, TOK *manifi* '*P. oualensis*', PUK *pāniwi* '*P. oualensis*', TIK *manifi* '*P. oualensis*'

In the absence of precise identifications for the Niuatoputapu terms, we can only reconstruct this meaning for PSO. As this is a fish of distinctive appearance it is rather surprising that its name is in many languages a local innovation.

GERRIDAE

#88 PPN **matu* '*Gerres* spp., mojarras'
PCP *matu* (Geraghty)
TON *matu* 'k.o. fish: like a silver bream. When full-grown it is called *matulā*' (Churchward 1959), NTP, EUV, SAM, TOK *matu* '*Gerres* sp.', KAP *madu* 'fish sp.: mojarra', WUV *matu* '*Gerres* sp.'

MULLIDAE

#89 PPN *wete '*Mulloidichthys*, goatfish sp.'
POC **wete* (Walter 1989), PCP **tewe* (Geraghty, based on KIR *tewe*)
TON, SAM, TOK, TUV *vete*, PUK *vete(tea)*, NUK, KAP *wede*, REN *bete*, TIK *vete*, HAW *weke*, MQS, TAH, MAN, CIM *vete*

All reflexes are glossed 'goatfish' or '*Mulloidichthys* sp.', frequently *M. samoensis.*

#90 PPN *hafulu 'goatfish, most likely *Parupeneus* and *Upeneus* spp.'
NIU *hafulu* 'general term for full-sized goatfish' (informants), SAM *afulu* 'small *memea*' i.e. goatfish (Milner 1966), *afolu* '*M. samoensis*' (Jordan & Seale 1906), TOK, TUV *afulu* '*Parupeneus* spp.', PUK *kawulu* '*Parupeneus* spp.', NUK *ahulu* 'goatfish sp.', REN *'ahugu* 'a small fish said to resemble *ga'ea* (parrotfish)', TIK *afuru* 'goatfish', EAS *hahuu* '*Pseudupeneus orientalis* (Fowler)' (Randall & Cea Egaña 1984), HAW *'ahuluhulu* 'juvenile of *Upeneus porphyreus*', TAH *ahuru* 'goatfish spp.'; MAN *ka'uru* 'red and purplish Mullidae spp.', CIM *ka'uru'uru* '*Parupeneus* sp.', MAO *āhuruhuru* '*Upeneichthys lineatus*, red mullet', *āhuru* '*Auchenoceros punctatus*'

The last named species is a small cod, pink in colour and with barbels under the chin, but otherwise not resembling goatfish. This widely disseminated form exhibits a number of phonetic irregularities: change in the initial vowel in Luangiua, and in the second vowel in one of the Samoan reflexes; epenthetic initial /k/ in Pukapukan, Mangaia and Cook Islands Maori, and initial glottal stop in Rennellese and Hawaiian; cf. PPN **fulu* 'hair'.

#91 PPN *malili 'goatfish sp.'
TON *malili* 'red mullet', TOK *mālili* '*Mulloidichithys vanicolensis*, non-spotted goatfish', TUV *mailili* '*Upeneus vittatus*', NUK, KAP *malili* 'goatfish sp.', TIK *mālili*

#92 PPN *memea 'goatfish sp.'
TON *mēmea* 'a reef fish', NTP *memea* '*Parupeneus* sp.', NIU *memea* 'reddish goatfish, 6-7 inches long', EUV *memea* '*Mulloides flavolineatus* (Lacépède)', SAM *memea* 'goatfish sp.', TOK, PUK *memea* '*Mulloidichthys auriflamma*, gold-lined goatfish'

If the East Uvean and Tokelauan glosses are scientific synonyms, as seems likely, a tentative reconstruction confined to this species would be in order.

#93 PPN *kaloama 'goatfish'
TON *kaloama* 'young *vete* (*Mulloidichthys*)', NTP *kaloama* '*Mulloides flavolineatus* (Lacépède)', NIU *kaloama* 'goatfish, small, yellowish' (informant), EUV *kaloama* '*M. flavolineatus*', SAM *'aloama* 'k.o. fish',TUV *kalo* '*Mulloidichthys auriflamma*' (Zann 1980; ?synonym of above), PUK *kalōma* 'yellow mullet' (Beaglehole & Beaglehole 1938), KAP *gala* 'goat fish sp.', MQS *ka'oa* '*Upeneus vittatus*' (North), '*Mulloidichthys* sp. (South), MAN *koama, koama vete* '*M. samoensis, M. vanicolensis*', CIM *koama* 'young *vete*, 6 inches' (Bacquie 1977), MAO *koroama, koroamo* 'a small fish'

#94 PPN *matu?ulau
PCP **matuxurau* '*Parupeneus* sp.' (Geraghty)
NTP *matu'ulau* 'goatfish', EUV *(moaga) matu'ulau* '*Parupeneus* spp.', SAM *matūlau* '*Pseudupeneus* sp.', KAP *madu-ai-lau* 'goatfish sp.', TIK *motūrau* 'small goatfish', MQS *matu'au* '*Parupeneus* spp.'

On the assumption that the Niuatoputapu and East Uvean forms are of Tongan origin, as indicated by the glottal stop found only in these two languages, I am reconstructing /l/ as the final consonant (cf. Geraghty's **matuʔu(r,l)au*).

#95 PNP **moaŋa* '*Parupeneus* spp.'
EUV *moaga* '*Parupeneus* sp.', SAM *moaga, moana* '*Parupeneus* sp.', TOK *moaga* '*Parupeneus* spp.', PUK *moanga* 'small goatfish of all varieties' (tentative), KAP *moanga* 'goatfish', TIK *moanga* 'goatfish', HAW *moana* '*Parupeneus* sp.', MQS *moana* '*Parupeneus* sp.' (South), TUA *moaga* '*Parupeneus* sp.'

Note the irregular final vowel in the Hawaiian reflex.

KYPHOSIDAE

#96 PPN **(na)nue* 'Kyphosidae, rudderfishes'
PCP **renua* '*Kyphosus*' (Geraghty)
TON, NIU *nue*, SAM, TOK, TUV, PUK, TIK *nanue*, EAS *nānue*, HAW *nanue*, MQS *nenue*, TAH, MAN *nanue*, MAO *nanua* '*Cheilodactylus spectabilis* morwong, red moki'

A very widely distributed fish name. All glosses except New Zealand Maori refer to *Kyphosus* spp. Bagnis et al. (1972) identify TAH *nanue* as *K. cinerascens*. See Randall and Cea Egaña (1984) for a list of binomials applied to varieties of *K. bigibbus* (Lacépède) in Easter Island. The New Zealand Maori form has an irregular correspondance in the final vowel and the species have little in common.

CHAETODONTIDAE and ZANCLIDAE

#97 PPN **tifitifi* 'butterfly fish'
PRO **tipitipi* (Walter 1989), PCP **tivitivi* (Geraghty)
TON *sifisifi*, NIU *tifitifi* '*Chaetodon* spp.', SAM, TOK, TUV *tifitifi* 'general name for Chaetodontidae', PUK *tiwitiwi*, NUK, KAP *dihidihi*, TIK *tifitifi* 'angelfish', WFU *shihshifi* 'angelfish and butterfly fish', *shi'hshifi kaiao* '*Zanclus* sp.' (*kaiao* 'plume') (Fakamuria n.d.), EAS *tipitipi'uri* '*Chaetodon litus* (Randall & Caldwell)', *tipitipi hoe* '*Forcipiger flavissimus* (Jordan & McGregor)', HAW *kihikihi* '*Zanclus canescens, Chaetodon* sp. and *Zebrasoma veliferum*', MQS *patihi* 'butterfly fish', MAN, CIM *ti'iti'i* 'butterfly fish'

Note also HAW *ulua kihikihi* '*Alectis ciliaris*', a striking lozenge-shaped Carangid with long trailing streamers like those of *Z. canescens*, and TUV *tetaetifi otua* '*Chelmon* sp., beaked butterfly fish'.

#98 PSO **laulaufau* '*Zanclus canescens*, Moorish idol, *Chaetodon* spp.'
SAM *laulaufau* '*Heniochus* sp. (Chaetodontidae)', TOK *laulaufau* '*Zanclus canescens*', TUV *laulaufau* '*Chaetodon auriga* and *Platax* sp., batfish' (Zann 1980), PUK *lūlūau* '*Z. canescens*', REN *gaugauhau* 'general name for butterfly fish when dominantly striped' (Elbert 1975), TIK *rauraufau*

POMACENTRIDAE

#99 PPN **mutu(mutu)* 'fish spp., probably Pomacentridae'
PCP **mu(t,d)u* '*Abudefduf*' (Geraghty)
TON *mutumutu* 'k.o. fish', NTP *mutu* '*Abudefduf septemfasciatus*', NIU *mutumutu* 'small grey fish with dark vertical bands and a yellowish patch on back', EUV *mutumutu* '*Abudefduf sordidus* (Forskål), sergeant major', SAM, TOK *mutu* '*Abudefduf* spp.', TUV *mutumutu* 'Pomacentridae', TIK, ANU *mutu* 'general term for Pomacentridae', WFU *mutu* 'toadfish' (Fakamuria n.d.)

A variety of secondary lexemes are recorded for Tokelauan, including *mutufatu*, *mututea* and *mutulei*, referring to dark, light, and small species respectively. In Eastern Polynesian languages, *mutu* has been replaced by a variety of other terms. Note however MAO *mutumutu* 'a fish, prized for its delicacy'. The toadfish (West Futunan) bears no resemblance to Pomacentridae.

ECHENEIDAE

#100 PPN **talitali?uli* '*Echeneis* sp., remora, and *Naucrates ductor*, pilot fish'
TON *teliteli'uli* 'pilot fish' (Churchward 1959), NTP *teliteli'uli* 'remora', NIU *tolitoliuli* '*Echeneis* sp.', EUV *talitali'uli* '*Echeneis* and *Remora* spp.', SAM *talitaliuli* 'pilot-fish (*Leptecheneis* sp.) [sic.]' (Milner 1966), TOK *talitaliuli* 'fish parasites which include the pilot fish (*N. ductor*), cleaner-fish or paradise fish (*Labroides dimidiatus*) and the *teletelevakaniu* or suckerfish (*Ecneneis naucrates*)', PUK *talitaliuli* '*Echeneis* sp.', KAP *danedaneauli* '*E. naucrates*', LUA *kauliuli* 'slender sucking fish', TIK *taritariuru* 'suckerfish', WUV *taliuliuli* 'poisson: suçon', EAS *(māngo) taritari* '*Naucrates ductor*', MQS (Nuku Hiva) *tataiu'i* '*E. naucrates* and *Remora remora*', TAH *tiatiauri* '*E. naucrates*', TUA *kakariuri* '*E. naucrates*', MAN *taritari*

Common glosses of 'support' or 'wait upon' for reflexes of PPN **talitali* relate well to the habits of pilot fishes and remoras, both of which are closely associated with sharks. Milner's gloss for the Samoan name exemplifies the confusion between these two unrelated species which obtains at the level of vernacular naming in both European and Polynesian cultures. The 'pilot fish' is *Naucrates ductor*, a *Caranx*, whereas the name *Leptecheneis* is an obsolete scientific synonym of *Echeneis*. Christian Clerk (1981) gives the etymology 'carried about' for MAN *taritari*. This casts some light on the Tahitian form, since *tiatia* also means 'to carry or convey' (Davies 1851). PPN **?uli* 'to steer' seems an obvious source for the final morpheme rather than **?uli* 'black', since *E. naucrates* is a greenish-grey and *N. ductor* is bluish, green and silver. Note the irregular correspondence /k/ for /t/ in Tuamotuan, and in West Uvean the reduplication of the second morpheme rather than the first.

The Tokelauan specific *teletelevakaniu* is not so far as I know attested elsewhere.

LABRIDAE and SCARIDAE

These are considered together, since some cognate sets contain glosses referring to both families. Many of the names for parrotfishes and wrasses appear to be local innovations.

#101 PPN **suŋale* 'wrasse sp.'
TON, NTP *hungale* '*Halichoeres centriquadrus*' (syn. of *Hemitautoga centriquadrus* (Lacépède)), SAM *sugale* 'name give to wrasse spp.'(Milner 1966), TOK *hugale* '*Thalassoma hardwickii*, six-barred wrasse', *hugale paea* '*H. centriquadrus*'

Very limited distribution. Note also SAM *fuga*, 'general name given to fishes of genus *Scarus* when about 1 ft. long' (Milner 1966).

#102 PNP **pap(o,u)* '*Cheilinus* sp.'
TOK *papo* '*Cheilinus fasciatus* (Bloch), Maori wrasse', TUV *papo* '*Epibulis insidiator* (Pallas), *Ch. trilobatus* (Lacépède)', PUK *papo* (adult), *papopapo* (juvenile) '*Ch. fasciatus*, NUK *babu honga akau*, LUA *papu* 'Maori wrasse', REN *papu* 'several kinds of dark brown wrasse fish', TAH *papae mara* '*Ch. fasciatus and trilobatus*'

#103 PNP **maLa(tea)* '*Cheilinus undulatus* (Rüppell), Napoleon fish'
TON *mala* 'a large Serranid fish, like *tonu*', NTP *mala* (no semantic information), TOK, TUV, PUK *malatea* '*Ch. undulatus*', TAH *mara* '*Ch. undulatus*', RAP *maratea* '*Bodianus perditio* (Quoy & Gaimard)' (Randall & Sinoto 1978), TUA, CIM *maratea* '*Ch. undulatus*', MAO *maratea* '*Chironemus spectabilis*, kelpfish'

The Rapa word refers to a wrasse, but the New Zealand Maori one to a fish with no resemblance to this family. In Pukapukan the juvenile of this species is called *lalawi* (see below).

#104 PPN **m(a,o)lali* 'wrasse sp.'
PCP **m(a,e)rari* (Geraghty)
TOK *molali* '*Ch. trilobatus*, trilobed Maori wrasse', PUK *malali* '*Anampses godeffroyi*' (Beaglehole & Beaglehole 1938), LUA *maalali* 'rainbow fish' (?*Halichoeres* sp., rainbow wrasse), EAS *mārari* (male), *mōri* (female)'*Anampses caeruleopunctatus* (Rüppell)', *mārari* '*Novaculichthys taeniourus* (Lacépède) and *Coris angulata* (Lacépède), wrasse spp.'

Inexplicably, Randall and Cea Egaña (1984:13) do not include the two last identifications in their list of Rapanui fish names, but in the discussion at the end of the article.

Geraghty (this volume) reconstructs PCP **m(a,e)rari* on the basis of Rotuman *marari* and Proto Micronesian **merari.*

#105 PPN **ŋutuloa* ?'*Epibulis insidiator* (Pallas), or other long-nosed wrasse sp.'
TON *ngutuloloa* 'k.o. fish', SAM *gutu ume*, TOK *gutuloa* '*E. insidiator*', KAP *ngutu looloo* 'fish sp.', TAH *(papae)'uturoa* '*E. insidiator*'

One of the few descriptive names with a fairly widespread distribution.

#106 PPN **taŋafa* '*Cheilinus* sp.'
PCP **taŋava* '*Cheilinus undulatus*' (Geraghty)
TON *tangafa* 'k.o. fish', SAM *tagafa* '*Cheilinus* sp.' TUV *tangafu* '*C.undulatus*', TIK *tangafā* 'sea fish...apparently a wrasse' (Firth 1985)

#107 PPN **ʔufu* 'wrasse or parrot fish'
TON *'ufu* '*Anampses* sp.', NTP *'ufu* '*Cheilinus trilobatus*', SAM *ufu* 'the name of a fish' (Pratt 1878; not the general name for parrotfishes), TOK *ufu* 'general name for *Scarus* spp., parrotfish', PUK *wū* 'general name for parrotfish', NUK *huuhuu* 'a number of parrot fish spp.', KAP *huhu* 'parrot fish sp.', REN *'uhu* 'parrot fish sp.', TIK *ufu* '*Scarus* sp.', EAS

'uhuhanga '*Leptoscarus vaigiensis* (Quoy & Gaimard), parrotfish', HAW *uhu* 'parrot fish spp.', TAH *uhu* '*Scarus lunula* (Snyder)', MAN, CIM *u'u* '*Scarus* spp.'

#108 PPN **lalafi* 'wrasse or parrot fish spp.'
PCP **dradravi* (Geraghty)
TON, NTP *lalafi* '*Scarus* sp.', EUV *lalafi* '*Cheilinus* spp.', SAM *lalafi* '*Cheilinus* sp. wrasse', TOK *lalafi, lafilafi* 'juvenile growth terms for *Cheilinus undulatus*', PUK *lawi* '*Sc. harid* yellow parrotfish', *lalawi* '*Cheilinus undulatus*, juvenile' (informant), '*Ch. unifasciatus*' (Beaglehole & Beaglehole 1938), KAP *llahi* 'fish spp.'

A name which appears to have dropped out of Eastern Polynesian languages.

#109 PPN **ʔulafi* 'Scaridae spp.'
PCP **qulapi* 'parrot fish' (Walter 1989), **ʔulavi* '*Scarus harid*' (Geraghty)
EUV *'ulafi* '*Scarus* spp.', TOK *ulafi* '*Scarus* sp., probably *Sc. harid* (Forskål), yellow parrot fish', TUV *ulafi* '*Scarus* sp.', NUK, KAP *ulahi* 'parrot fish', LUA *ulahi* 'fish sp.', REN *ugahi* 'species of parrot fish with long pointed heads' (Elbert 1975), TIK *urafi* 'parrotfish'

#110 PSO **kulapo(o)* 'parrot fish spp.'
TON *kulapō* 'k.o. fish', NTP *kulapo* (no semantic information), SAM *'ulapo* 'full grown parrot fish' (Goo & Banner 1963), 'lighter-coloured species of genus *Scarus*...when about 6 inches long' (Milner 1966), TOK *kulapo* '*Sc. harid*, juveniles'

Compare #84.

#111 PPN **kamutu* '*Scarus* sp.'
PCP **kam(o,u)tu* 'female *Scarus* sp.' (Geraghty)
TON *kamutu*, TOK *kāmutu* '*Scarus jonesi*'

I have not myself been able to establish an identification for the Tongan reflex, but am including this name on the strength of Geraghty's PCP reconstruction, based on Tongan and Tokelauan and the Fijian *kāmotu* '*Scarus sordidus*, female'.

#112 PPN **mamanu* '*Scarus* spp., parrot fish'
TON *mamanu* 'parrot fish', SAM *mamanu* 'reddish-brown species of genus *Scarus*' (Milner 1966), TOK *mamanu* '*Sc. chlorodon* (Forskål), ocean parrot fish', TUV *mmanu* '*Scarus* spp.'

#113 PSO **laʔea* 'parrot fish spp. with bulging foreheads'
SAM *laea* 'several varieties of large green and blue parrot fish', TOK *laea* '*Scarus jonesi* (Streets), tattooed parrot fish, *Sc. gibbus* (Rüppell), big blue parrot fish', TUV *laea* '*Scarus* sp.', REN *ga'ea* 'general name for some parrot fish', EAS *ra'ea* '*Cheilodactylus plessisi* (Randall), morwong', HAW *lae nihi* 'name applied to various high-headed labroid fishes'

There is an obvious semantic connection with PPN **laʔe* 'forehead', and the Hawaiian name is so obviously descriptive (lit. 'steep forehead') that it can't be regarded as necessarily part of the same set.

BLENNIIDAE

#114 PPN **(m,p)anoko* 'Blenniidae spp., blennies'
NTP *manoko*, EUV *panoko*, EFU *manoko* 'nom d'un petit poisson', SAM *mano'o* 'gobies, mudskippers', NUK, REN *manoko*, TIK *panoko*, ANU *panauko* (Lincoln n.d.b), TAU

panoko, EAS *pāroko* 'blennies and gobies', HAW *pāno'o, pāo'o* 'name for several varieties of *o'opu* [PEP **kookopu* 'gobies']', MQS *pāoko*, MAO *paanoko* '*Cheimarrichthys fosteri*, sandperch'

All glossed 'blenny' unless otherwise indicated.

The innovation of initial /p/ for /m/ is established throughout Eastern Polynesian, but its occurrence in other Nuclear Polynesian languages (East Uvean, Tikopian, Anuta and Taumako) requires explanation.

ACANTHURIDAE

#115 PPN *manini '*Acanthurus triostegus* (Linné), convict tang'
TON *manini*, NIU *manini* '*Cirrhites* spp. handfish' (informant), EUV, EFU, SAM, TOK, PUK, KAP *manini*, LUA *maŋŋii*, TIK, MEF *manini*, MQS *menini*, TAH, RAP, MAN *manini*

All reflexes except for Niuatoputapu glossed *A. triostegus*. For this species my informant gave the name *tukusea*. It is hard to imagine anyone making a mistake about such a striking and common variety, but nevertheless this information is suspect. Note that Niuatoputapu also has the form *'ulutuki* for *Cirrhites* spp. (see #51 and cf. FIJ *manini*, which Geraghty (this volume) suggests may be a PN loan).

#116 PPN *hapi '*Acanthurus guttatus* (Schneider), spotted surgeon fish'
PCP **(c,s)abi* (Geraghty)
TON (NTP), NIU *hapi*, EUV, TOK, TUV *api*, NUK, KAP *abi*, REN *api* 'some species of surgeonfishes', TIK *api*, HAW *'api*, MQS *'api'api*, TAH *api*, MAN *'api* 'general term for many varieties of surgeonfish', CIM *api*

#117 PPN *palaŋi '*Acanthurus* sp. of large size and elongate shape'
PCP **mpalaŋi* '*Acanthurus* sp.' (Walter 1989)
TON, NTP *palangi* '*A. xanthopterus* (Cuvier & Valenciennes), yellow fin surgeon fish, *A. bleekeri* (Günther)', EUV *palagi* '*A. bleekeri*', SAM *palagi* '*Acanthurus* sp.', TOK *apalani* '*A. xanthopterus*', TUV *kapalangi, 'A. bleekeri*', PUK *palangi* '*Acanthurus* sp., similar to *A. bleekeri*', KAP *balangi* '*Acanthurus* sp.', LUA *palaŋi* '*Acanthurus* sp.', REN *pagangi* '*Acanthurus* sp.', WUV *palangi* '*Acanthurus* sp.', HAW *palani* '*A. dussumieri* (Valenciennes)', MQS *pe'aki* (North), *pe'ani* '*A. bleekeri*' (South), TAH *para'i* '*A. xanthopterus*', MAN *parangi* 'large surgeon fish, a rare catch', CIM *(maito) parangi* '*A. xanthopterus*'

All reflexes are regular except for the Tokelauan one, in which the velar nasal is replaced by an alveolar nasal and there is an initial *a*. For the *maito* of the Cook Islands Maori form, see below PEP **maito*.

#118 PPN *ʔaloŋo '*Acanthurus* sp., probably *A. lineatus* (Linnaeus)'
TON, NTP *'alongo* '*A. lineatus*, zebra surgeon fish' (Dye 1983), EUV *'alogo* '*A. lineatus*', SAM *alogo* '*A. lineatus*', TOK *alogo* '*Ctenochaetus striatus* (Quoy & Gaimard), surgeon fish', LUA *oloŋo* 'bristle-tail surgeon fish', REN *'agongo* '*A. lineatus*', TIK *arongo* '*A. lineatus*'

Eastern Polynesian languages appear to contain no reflexes of this etymon. For the Tokelauan semantic shift, see also *pone*, below. The initial glottal stop in the Niuatoputapu and East Uvean forms suggests that they are borrowed from Tongan.

#119 PPN *ma?ito 'Acanthuridae, possibly *Ctenochaetus striatus* (Quoy & Gaimard)'
PCP **ma?eto* '*Ctenochaetus*' (Geraghty)
NIU *meito* '*C. striatus*', EUV *ma'ito* '*C. striatus*', TUV *maito* '*A. achilles* (Shaw), red-spotted surgeon fish' (Zann 1980), REN *ma?ito*, PUK *maito* 'similar to *ma* but with red stripes on the back' (Beaglehole & Beaglehole 1938), EAS *ma'ito* '*A. leucopareius* (Jenkins)', HAW *maiko, maikoiko* '*Acanthurus* spp.', TAH *maito* '*C. striatus*', RAP *maito* '*C. striatus, A. nigrofuscus* (Forskål)', TUA *maito* 'variety of fish', CIM *maito* '*C. striatus* and *Zebrasoma* spp.'

Bacquie's (1977) data for Cook Islands Maori suggests that *maito* is the generic term for *Acanthurus* spp. He cites a number of secondary lexemes, including *maito parangi* '*A. xanthopterus*'.

#120 PPN *pone '*Acanthurus* sp. or *Ctenochaetus striatus*'
TON *pone* '*C. striatus* and *Acanthurus* sp.', NTP *pone, ponelei* '*C. striatus*, EUV *pone* '*Acanthurus* spp.', SAM *pone* '*Acanthurus* spp. when about 6 inches long' (Milner 1966), *pone i'umumu* '*A. achilles*, red spotted surgeon fish' (Goo & Banner 1963), *ponepone* '*C. striatus*' (Jordan & Seale 1906), TOK *pone* '*A. achilles*', *pone lolo* '*C. striatus* in spawning season', TUV *pone* '*Ctenochaetus* sp., *A. olivaceous*', *pone lolo* '*C. striatus*' (Zann 1980), PUK *ponepone* '*Chaetodon* sp.', TIK *pone* 'surgeonfish (*Acanthurus* spp.), dark coloured (incl. red-spotted, yellow-spotted, bristle-toothed), said by Tikopia to be younger growth stage of *ma* [*A. bleekeri*]. May also include anemone-fish and clownfish of various types.' (Firth 1985)

The situation in Tokelauan is curious: *C. striatus*, generally named *alogo*, is called *pone* when it forms schools at spawning season and is netted on the reef in huge quantities, after the first thunderstorm in September. The extension of this name to other genera in Pukapukan and Tikopian can be accounted for by the bright colouring of the species in question.

Geraghty (this volume) comments that FIJ *pone* '*Acanthurus* sp.' may be a Polynesian loan.

#121 PPN *?ume '*Naso* sp., unicorn fish'
PCP **?ume* (Geraghty), POC **qume* (Walter 1989), PAN **qumay/*qumi*
TON, NTP *'ume* '*Naso unicornis* (Forskål)', EUV, EFU *'ume* 'generic term for genus *Naso*', *'ume tā* '*N. unicornis*', SAM, TOK, TUV, PUK, TIK *ume*, WUV *ume* 'Acanthuridae', HAW *'ume*, MQS, TAH, TUA, MAN, CIM *ume*

Wide distribution and complete regularity except for the initial glottal stop in Hawaiian. Dye (1983:270) and Rensch (1983:72) give a number of varietal names.

#122 PNP *ta(a)tifi '*Naso* spp., unicorn fish'
TOK *tātifi* '*N. rigoletto* (Smith), hunchback unicorn fish, *N. brevirostris* (Valenciennes), short-nosed unicorn fish, *N. herrei*, long-horn unicorn fish', TIK, ANU *tātivi* '*N. unicornis*', TAH *tatihi* '*N. brevirostris*, short-nosed unicorn fish', TUA *tatihi* 'unicorn fish'

#123 PPN *ma(h,s)a '*Acanthurus* sp.'
TON *maha* 'k.o. leatherjacket' (Churchward 1959), PUK *mā* '*C. striatus*', *mā pate* '*H. bariene* i.e. *Acanthurus* spp. (Beaglehole & Beaglehole 1938)', TIK *ma* [sic]'*Acanthurus*

bleekeri' (Firth 1985), TAU *mā* '*A. xanthopterus*', REN *masa* 'k.o. small fish', MEF *maa*, WFU *hmaa* 'dark surgeon fish sp., like *Acanthurus pyroferus* (Kittlitz)' (Fakamuria n.d.), MQS *maha* '*A. pyroferus*', *maha puafau* '*A. glaucopareius* (Schneider)', RAP *ma'ama'a* '*A. leucopareius* (Jenkins)'

A somewhat puzzling set, Nuclear Polynesian reflexes with a long vowel suggesting PPN **maha*, those with /h/ or /s/ suggesting **masa*. However, on the basis of FIJ *masa* '*Zebrasoma scopas*', Geraghty (this volume) reconstructs PCP and PPN **masa*. The short vowel in the Tikopian form is undoubtedly due to the orthographic conventions of the source.

#124 PPN **ʔafali* '*Acanthurus* sp.'
PCP **ʔavali* (Geraghty)
NTP *ʔafali* '*A. blochii*', REN *ʔahagi* '*Acanthurus* sp.'

GEMPYLIDAE

#125 ?palu*** '*Ruvettus pretiosus* (Cocco), oilfish'
TON *valu maka* '*R. pretiosus*', *palu maka* '*Thyrsitoides marlayi*, snake mackerel (both from Mead 1980b), NIU *palu, palu pō, palu tehī*, TOK *palu, palu pō, palu gatae, palu tupua*, TUV *palu, palu maoni* 'true *palu* (which include *palu fala* and *palu lavenga*)', PUK *palu, palu tæyi, pala fala*, TIK *paru fara*, HAW *valu*, TUA *pāruhi* 'a variety of fish, the ruvettus oilfish' (Anaa Is)

On purely linguistic grounds, *palu* can be reconstructed for PPN with the identification *Ruvettus*. However, see Hooper (1991) and section 4, for a discussion of other factors, including archaeological evidence, which suggest that *Ruvettus* fishing may have been a late Samoic-Outlier development, originating in the area of Tuvalu and Tokelau. Similar considerations affect the reconstruction of a precise identification for **kapoa* (below). Although *Ruvettus* fishing was not practised in Tonga, Mead (1979) gives a term for the fish, *valu maka*. This may be a coinage analogical to *palu maka*. However, see also the Hawaiian form *valu* which presents a problem (discussed in Hooper 1991), and cf. PPN **walu*, #132.

#126 PPN **kapoa* 'fish sp., probably *Plotosus* sp., catfish'
TON *kopoa* 'catfish', NTP *kopua* (no semantic information), EUV *kapoa* '*Plotosus lineatus* (Thunberg), catfish', SAM *'apoa* '*Plotosus anguillaris* (Bloch)' [synonym of the above], TOK, PUK *kapoa* '*Promethichthys prometheus* (Cuvier), snake mackerel', MEF *ikaapoa* '*Plotosus anguillaris*' (tentative identification)

This term is included under Gempylidae for convenience, on the basis of the Tokelauan and Pukapukan reflexes, as no other terms for catfish were reconstructable. An elongate shape provides the semantic continuity between these two species. *P. prometheus* is caught in association with *Ruvettus*, and the absence of a word for this species in Tongan and Samoan is explained by the fact that *Ruvettus* fishing was not practised in those islands. In Eastern Polynesian languages the word for *Promethichthys* is usually *mangā*.

#127 PPN *maŋaa 'fish sp.'
PEP *maŋaa 'Promethichthys prometheus, snake mackerel'
TON, NTP mangā 'fish sp.', EUV maga 'fish sp.', TAH manā '*P. prometheus*', TUA, MAN, CIM mangā '*P. prometheus*', MAO mangā '*Thyrsites atun* (Gempylidae)'

The NIU name for *P. prometheus* is *matimati*, a local innovation.

According to Nordhoff (1930:225-226), the Tahitian name is borrowed from Cook Islands Maori, with the irregular correspondence /n/ instead of /ŋ/ for CIM /ŋ/.

The New Zealand Maori form shows excellent semantic correspondence: of the two members of this family familiar to the Maori, the barracouta resembles *P. prometheus* the most closely.

SCOMBRIDAE

#128 PPN *paʔala '*Acanthocybium solandri* (Cuvier), wahoo'
PRO *mpanda '*A. solandri*' (Walter 1989)
NIU *paala* '*A. solandri*' (Mead 1980a), EUV *pa'ala* '*Scomberomorus commerson* (Lacépède), Spanish mackerel', (Rensch 1983), SAM *pāla* 'k.o. fish', TOK, TUV, PUK *pāla* '*A. solandri*', LUA *pala* 'large scaled tunny fish', TIK *pāra* '*A. solandri*', TAH *paere*, MAN *pa'ara* '*A. solandri*' (Clerk 1981), CIM *paara* '*A. solandri*' (Bacquie 1977), MAO *paara* '*Lepidopus caudatus*, frostfish'

The Tahitian word for wahoo is so divergent that it perhaps should not be included in this set. This large, powerful and predatory pelagic fish is an important food source for those areas where it is caught. Other names make reference to its shape or habits, for example HAW and TUA *ono*, a name usually associated with barracuda, *Sphyraena* spp., also TUA *roroa* ('long'). The New Zealand Maori referent *L. caudatus* belongs to the same suborder of Scombroidei and is a slender, sharp-toothed, scaleless fish described by Ayling and Cox (1982) as "excellent eating".

#129 PPN *ʔatu '*Katsuwonus pelamis* (Linnaeus), skipjack'
PCP *ʔatu 'bonito' (Geraghty), POC *qatu 'bonito' (Walter), PAN *qatun 'tuna'
TON *'atu*, EUV *'atu*, EFU, SAM, TOK, TUV, PUK *atu*, NUK, KAP *adu*, LUA *aku*, REN *'atu*, TIK *atu*, TAU *atu* '*Parathunnus mebachi* (Kishinouye), big-eye tuna, *Cybiosarda elegans*, leaping bonito, *Istiompax marlina*, black marlin', HAW *aku*, TAH *atu* (obsolete, found only in Davies (1851), glossed 'the same as *auhopu*'), CIM *atu*, MAO *atu(haakona)* 'a fish', *atu(rere)* 'a fish, highly prized' (Williams 1957)

All glossed *K. pelamis* except where otherwise indicated. The fact that Lincoln's material does not include names for *K. pelamis* seems to me to cast some doubt on the identifications given for TAU *atu*. In Tahitian, *atu* has been replaced by *auhopu*, and this term has been borrowed into Easter Island as '*auhopu* and into Cook Islands Maori as *au'opu*, synonymous with *atu*.

#130 PPN *taku(a,o) 'large tuna or skipjack'
TON *takuō* 'k.o. fish' (Churchward 1959), NIU *takua* '*Katsuwonus pelamis*', SAM *ta'uo* 'large bonito caught by trawling from cutters' (Milner 1966), TOK *takuo* '*Neothunnus macropterus* (Schlegel), yellowfin tuna, when very large', TUV *takua* '*N. macropterus* yellow fin tuna, over 8 kg.' (Zann 1980), PUK *takuo* 'obsolete term, but known from chants; a fish caught by noosing' (K. Salisbury, pers.comm.), NUK, KAP *dagua* 'yellowfin

tuna', REN *takua* 'k.o. very rare porpoise', TIK *takua* '*Xyphias gladius*, swordfish, *Makaira indica* (syn. *Istiompax indicus*), black marlin'

A term which appears to have disappeared from Eastern Polynesian languages. The semantic shift in the Tikopian case is a not unlikely one.

#131 PNP **kakasi* '*Thunnus albacares* (Bonnaterre), yellowfin tuna'
TOK *kakahi* '*T. albacares* and *T. obesus*, of medium size', TUV *kkasi* (Besnier 1981), *kasi* (Zann 1980) 'yellow fin tuna, under 8 kg.', PUK *kakai, kakayi* in traditional chants (K.Salisbury, pers.comm.), KAP *gahi-dua-motu, gahi-di-awa* 'tuna spp.' (Lieber & Dikepa 1974), TIK *kasi* '*Thunnus* sp.', EAS *kahi* '*Thunnus* spp.' (see Randall & Cea Egaña 1984 for varieties), HAW *'ahi*, MQS *kahi*, TAH *'a'ahi*, RAP *ikai*, TUA *kakahi*, MAN *a'ai* (Clerk 1981), CIM *a'a'i*

All glossed 'yellowfin tuna' except where otherwise indicated. The Pukapukan reflex may be the result of a tendency in Pukapukan to elide /y/ in intervocalic position (K. Salisbury, pers.comm.). The Cook Islands Maori form for its part seems to have been borrowed from Tahitian, with subsequent substitution of glottal stop for /h/. The Rapa form is very irregular but seems worth including.

#132 PPN **walu* 'Scombridae'
PNP **walu* '*Gymnosarda unicolor* (Rüppell) dog-tooth tuna' (syn. *Gymnosarda nuda*)
PCP **walu* (Geraghty)
TON *valu* 'general name for tuna spp.', *valu louniu* 'wahoo', NTP *valu* '*G. unicolor*', NIU *valu* 'the king fish' (McEwen 1970), EUV *valu* 'genus *Thunnus*, generic term', TOK *valu* '*G. unicolor* when large', TUV *valu* '*G. nuda*' (Zann 1980), NUK *valu* 'fish sp.', KAP *walu* 'fish sp.', LUA *valu* '*G. unicolor*', TIK *varu* 'large sea fish (said to be up to 2 m.)...id. as prob. *Thunnus orientalis* or as *Gymnosarda unicolor*', WFU *waru(kago)* 'yellowfin tuna' (Fakamuria n.d.), EAS *va'u*, HAW *walu* '*Ruvettus pretiosus*', MQS *va'u*, TAH *varu* (Davies 1851), *va'u* (Lemaitre 1973), RAP *vao*, TUA (Napuka Island) *vau* '*G. unicolor*', (Conte 1988:319), MAN, CIM *varu*

Dye (1983) for Niuatoputapu, Rensch (1983) for East Uvean and Firth (1985) for Tikopian list a number of binomials denoting varieties of tuna. Once again the Rapa reflex is irregular. The modern Tahitian form can be compared with *va'u* 'eight' for expected *varu*. The Easter Island and Tuvaluan forms are presumably borrowed from Tahitian or Marquesan. See Hooper (1991) for comments on the presumed semantic shift in the Hawaiian form.

#133 PNP **tawatawa* '*Euthynnus yaito*, black tuna, or *G. unicolor*, juvenile'
TON *kavakava* '*Euthynnus yaito*' (Kirch & Dye 1979), SAM *tavatava* 'name given to bonito when about one foot long' (Milner 1966), TOK *tavatava* '*Gymnosarda unicolor* when 18 - 24 inches', PUK *tavatava* '*G. unicolor*', KAP *dawadawa* 'small tuna', HAW *kawakawa* '*E. yaito*' (Gosline & Brock 1965), '*Gymnosarda alleterata* (Rafinesque)' (Jordan & Evermann 1973 [1903]), MQS *tavatava* '*E. yaito*', TAH *otava* '*E. yaito*', MAO *tavatava* '*Scomber australasicus*, blue mackerel'

Note also Kiribati *tawatawa* '*G. unicolor*' (Taumaia & Gentle 1983). This name presents difficulties of identification possibly complicated by synonymy of scientific terms. I am confident of the Tokelauan identification, both on morphological grounds and because *tavatava* is one of the most delicious eating fish of this family, with moist white flesh; Bagnis

et al. (1972:325) describe *E. yaito* as 'dry and tasteless', and Herald (1962:228) mentions its less desirable dark meat.

The New Zealand Maori retained this name for what was probably the only member of this family accessible to their fishing methods.

The irregular correspondence (/k/ for /t/ elsewhere) in the Tongan form cited in Kirch and Dye (1979:67) makes a PPN reconstruction problematic. Moreover this identification is inconsistent with a later one made by Dye (1983:168), who tentatively glosses NTP *kavakava* as *Terapon* sp. and cites Tongan and Samoan cognates. Is it possible that this identification was made on the basis of the Milner (1966) dictionary entry? Of course the Tongan term may refer to both fish, but if so my informant in 1978 was not familiar with it. Teraponidae or 'tigerfish' do not resemble tunas at all, and are not closely related to them. However their appearance is consistent with Churchward's (1959) gloss. I give this cognate set below for comparison; it is too small and its status too dubious to warrant a PPN reconstruction. Note also Geraghty's reconstruction of PCP and PPN **kawakawa* 'Labridae sp.' on the basis of Fijian and Eastern Polynesian reflexes, and his comment on the relation of this to the meaning 'Teraponidae sp.'.

TON *kavakava* 'k.o. fish having small scales and longitudinal stripes: the scavenger fish' (Churchward 1959), NTP *kavakava* '*Terapon jarbua*?' (Dye 1983), EUV *kavakava* '*Therapon jarbua* (Forskål)' (Rensch 1983), EFU *kavakava* 'nom d'un poisson' (Rensch 1986), SAM *'ava'ava* '*Terapon* sp.' (Milner 1966)

XIPHIIDAE

#134 PPN **sakulaa* 'swordfish, sailfish'

PAN **sakulayaR*

TON *hakulā*, NIU *hakulā*, *haku tangata* '*Xyphias gladius* (Linnaeus), *Makaira* sp., swordfishes', EUV *hakulā* '*Makaira mazara* (Jordan & Snyder)', SAM *sa'ulā*, TOK *hakulā* '*X. gladius* and other swordfish spp.',TUV *sakulā*, PUK *akulā*, NUK *sagulaa*, KAP *hagulaa* 'sailfish, swordfish' LUA *sa'ulaa* 'southern marlin', TIK *sakura* 'sailfish', ANU *te kura* 'black marlin', TAU *te kulaa* 'sailfish', HAW *a'u*, MQS *haku'ā* '*Makaira* spp.' TAH *ha'urā*, TUA *hakurā* 'black marlin', CIM *'akurā*, MAO *haku* '*Seriola grandis*, kingfish', *hakuraa* 'Scamperdown whale' and '*Polyprion oxygeneios* grouper, when large (syn. of *hapuku*)'

Compare PPN **laa* 'sail'. This morpheme has disappeared from the Hawaiian reflex and from some forms in Niuatoputapu and New Zealand Maori. All reflexes are identified as swordfish, marlin etc. except for New Zealand Maori. The semantic shift of MAO *haku* to another pelagic gamefish, the kingfish, is well motivated, but somewhat surprising: *X. gladius* was known to the Maori, who called it *paea*. The referents of MAO *hakuraa* are even less explicable.

SCORPAENIDAE

#135 PPN **nofu* '*Synanceja verrucosa* (Bloch & Schneider); Scorpaenidae spp., scorpion fish and stone fish spp.'

PCP **novu* (Geraghty), POC **nopu*, (Walter 1989), PAN **nepuq*

TON, EUV, EFU, SAM, TOK, TUV *nofu*, PUK *nou*, NUK, KAP, LUA, REN, TIK, WUV *nofu*, EAS, HAW, MQS, TAH, TUA *nohu*, MAN, CIM *no'u*, all glossed 'scorpion

fish', MAO *nohu* 'a fish with poisonous spines, like a porcupine fish, but reddish in colour' (Williams 1957).

A folk generic that is widely reflected, as befits a dangerous and singular-looking species. Many binomials are recorded. Note also MAO *matuawhapuku* 'grandfather hapuku', the most common name for the scorpion fish *Scorpaena cardinalis.*

#136 PSC *saku(saku)lele, PEP *tataraihau '*Pterois* spp., zebra fish'
EUV *hauhaulele* '*Pterois* spp.', SAM *sa'ulele* 'k.o. fish' (Milner 1966), TOK *hakuhakulele* '*P. antennata* (Bloch)', KAP *hauihau* '*P. volitans* (Linnaeus)', TIK *sakurere* 'spiny reef fish...Recognised as dangerous since spines can injure person though fish small' (Firth 1985), TAH *tataraihau* '*Pterois* spp.', MQS *ta'ata'aihau* '*Pterois* spp.', CIM *tataraiau* '*Pterois* spp.' (Bacquie 1977).

It is difficult to know if this is two cognate sets or one, as the Kapingamaringi form appears to relate to the Eastern Polynesian ones, and the East Uvean form appears to be a hybrid (cf. **talatala* 'prickly' and **haku* 'needlefish etc.'). The segment *hau* in Kapingamaringi, East Uvean and Eastern Polyneisan languages suggests a Samoan origin.

BALISTIDAE

One of the few families for which there is a general name, with numerous secondary lexemes denoting species and varieties recorded in individual languages.

#137 PPN *sumu 'Balistidae'
PCP **cumu* (Geraghty), POC **sumu* (Walter)
TON, NIU, EUV *humu*, EFU, SAM *sumu*, TOK *humu*, TUV *sumu*, PUK *umulenga* '*Balistes capistratus*', *yimu* '*Balistes ringens*' (both from Beaglehole & Beaglehole 1938), NUK *sumu*, KAP *humu*, REN, TIK, ANU, MEF, WFU, WUV *sumu*, HAW *humuhumu*, MQS *humu*, TUA *humu* '*Katsuwonus pelamis*, skipjack; *Thunnus obesus*, big-eye tuna' ((Napuka Island), Conte 1988:289)

The Tuamotuan (Napuka) lexeme shows a most extraordinary semantic shift to two species of the family Scombridae. The reduplicated form *humuhumu* is the generic term in East Uvean and Hawaiian. A number of secondary lexemes are recorded for most languages, but most of these are local innovations. Only the following sets appear to be distributed more widely.

#138 PNP *sumuleŋa '*Balistapus undulatus* (Park), red-lined triggerfish'
TOK *humulega* '*B. undulatus*', TUV *sumulenga* '*Melichthys* sp.', PUK *umulenga*, TIK, ANU *sumu renga* '*B. undulatus*'

Compare PPN **reŋa* 'turmeric; reddish-yellow colour'.

#139 PNP **ʔumekaleva or ***sumukaleva*** 'Balistidae, probably *Alutera scripta* (Osbeck), figured leather-jacket'
NTP *'umekaleva* (no semantic information), EUV *'ume kaleva* '*A. scripta*', *humuhumu kaleva* '*Sufflamen fraenatus* (Richardson)', SAM *ume'aleva* '*Aluteres* sp.' (Milner 1966), TOK *humu kaleva* '*A. scripta*', TUV *sumu kaaleva*, PUK *kālevaleva* '*A. scripta*', TIK, ANU *sumu kāreva* '*A. scripta*', HAW *'o'ili lepa* '*A. scripta* and *Cantherines* sp.' (cf. *kokiri*), MQS *kā'eva'eva*, TAH *pareva* '*A. scripta*', TUA *(kōkiri) karava* '*Balistes* sp.'

#140 PEP *kookili* 'Balistidae spp., trigger fish, general term'
PUK *kōkili*, EAS *kokiri*, HAW *'ō'ili (uwiuwi)*, *'ō'ili (lepa)'*, TAH *'ō'iri*, TUA *kōkiri*, CIM *kōkiri*

Another term which Pukapukan shares with Eastern Polynesian languages.

TETRAODONTIDAE and OSTRACIONTIDAE

#141 PPN *te?ete?e* '*Arothron* and *Canthigaster* spp., pufferfishes'
PCP **jexejexe* (Geraghty)
TON, NTP *te'ete'e*, NIU *tētē*, EUV *te'ete'e* 'generic term for some species of *Arothron*', SAM *tētē* 'immature globe fishes' (Milner 1966), TOK *tētē* '*Arothron meleagris* (Bloch & Schneider),white spotted pufferfish', KAP *deedee* '*Sphaeroides annulatus*, Gulf pufferfish', REN *te'ete'e*, HAW *kēkē* '*A. hispidus*', TAH *tētē* 'name of a small fish' (obsolete, Davies 1851 only), CIM *tētē*

#142 PPN **tautu* '*Diodon* spp., porcupine fish'
PCP **tautu* (Geraghty), PAN **taRutum/ŋ* 'puffer / porcupine fish'
TON *toutu, toutufala* 'k.o. fish' (Churchward 1959), NTP *toutu* 'spiny puffer', NIU *toutu* '*Diodon* spp.', EUV *tautu* (juvenile), *tautufala* '*Diodon* spp.', EFU *ta'utu* 'nom d'un poisson velu' (Rensch 1986), SAM, TOK *tautu*, TUV *tautau*, NUK *daudu* 'spiny puffer fish', KAP *doudu*, LUA *kauku*, REN, TIK, WFU, WUV *tautu*

A PPN generic term replaced in Eastern Polynesian languages by **tootara*, see next entry. My Tongan informant did not know *toutu*, and gave *sokisoki*, a Fijian borrowing, as the name for porcupine fish.

#143 PEP **tootara* '*Diodon* spp., porcupine fish'
PUK *tōtala*, EAS *(titeve) taratara* '*Chilomycterus affinis* (Günther), porcupine fish', HAW *kōkala*, MQS *tōta'a*, TAH, TUA, CIM *tōtara*, MAO *(kōpū) tootara*

A generic term, with many binomials at species level. Again, note the existence of a Pukapukan reflex.

#144 PNP **sue* 'pufferfish spp.'
EUV *hue* 'generic term for some species of *Arothron*', EFU *sue* 'nom d'un poisson' (Rensch 1986; description not inconsistent with pufferfish), SAM *sue* '*Arothron* and *Canthigaster* spp.', TOK *hue*, TUV *sue* '*Arothron* spp.' (Vaitupu dialect; Zann 1980), PUK *yue*, LUA *su'e* 'cowfish, toadfish', TIK *sue* 'globe-fish and pufferfish spp.', EAS *(titeve) huehue* '*Sphoeroides pachygaster* (Müller & Troschel), pufferfish sp.', HAW *(o'opu) hue* 'pufferfish sp.), MQS *huehue(kava)* '*Arothron* and *Canthigaster* spp.', TAH *huehue* '*Arothron* spp.', TUA *hue* 'pufferfish spp.', MAN, CIM *'ue'ue* 'pufferfish spp.', MAO [*upokohue* 'porpoise']

A descriptive name; cf. **sue* 'gourd, calabash'.

#145 PPN **moamoa* 'Ostraciontidae, boxfish'
PCP **moamoa* (Geraghty)
TON, NTP *mōmoa* '*Ostracion* and *Lactoria* spp., boxfish and cowfish', EUV, SAM, TOK, TUV, PUK *moamoa* '*Ostracion* or *Lactoria* spp.', NUK *moomoa*, KAP *(dege)moomoo*, LUA *momoa*, REN *moamoa*, TIK, ANU *momo(aka)*, TAU *momo(vaka), momo(hatu)*, WFU *moamoa*, EAS *momo(tara)*, HAW *moa, moamoa*, MQS *momo'oa(ohaka), momo(haka)*, TAH *momoa*, MAN *moamoa*

All reflexes defined as varieties of boxfish, trunkfish or cowfish.

SIGANIDAE

#146 PPN **ma?awa* '*Siganus* sp., rabbitfish'
PCP **ma?awa* (Geraghty)
TON *ma'ava* '*S. fuscescens* (Houttuyn)', TOK *maeava* '*S. rostratus* (Valenciennes)', TUV *maiava* '*Siganus* sp.', PUK *mālava*, MQS *ma'ava* '*Siganus argenteus* (Quoy & Gaimard), also *Aphareus furcatus* (Nuku Hiva)', TAH, TUA *marava*, MAN *morava*, CIM *mōrava* '*S. rostratus*' (Bacquie 1977)

For the phonological irregularities, see discussion in Geraghty (this volume).

#147 PPN **oo* 'tuna baitfish, such as the fry of *Siganus* or *Caesio* spp.'
TON *ō* 'k.o. fish; small, with poison back fins' (Churchward 1959; almost certainly *Siganus*), NTP *ō* 'rabbitfish', EUV *ō* '*Siganus* sp.', SAM *lō* 'the name of a fish' (Pratt 1878), TOK *ō* '*Lepidozygus* sp.', *lōtala* '*Siganus* sp. (juvenile)', TUV *ō* 'small reddish baitfish' (Gillett 1985, pers.comm., from informant; see also Kennedy (1931), who describes *ō* as 'silver and bluish-green'), PUK *wō* 'a tiny deep-sea minnow, comes close to the reef in large schools' (Beaglehole & Beaglehole 1938; my informants described a fish with the same behavioural characteristics as TOK *ō*), MAO *oia* '*Caesioperca lepidoptera*, butterfly perch'

This set is included here for convenience, because a number of reflexes refer to the fry of the genus *Siganus*. See section 4, for a discussion of the problems associated with this name. The New Zealand Maori fish name *oia* seemed worth including as the species is pink in colour, becoming red when removed from the water, and like the tropical species described above feeds on plankton and swims in schools (Ayling & Cox 1982:208).

APPENDIX 3: FINDERLIST

Hooper, R. "Reconstructing Proto Polynesian fish names". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*. **C-127:185-230**. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.185*

ASPECTS OF AUSTRONESIAN KINSHIP SEMANTICS

VIKTOR KRUPA

1. INTRODUCTORY REMARKS

The subtitle of our symposium raises the question of the goal of investigating the diachrony of languages. Is it explanation of the present state? Reconstruction of the initial state, whatever that means? Understanding the mechanism of change? Using language data as a lever to uncover the way of life and culture of past generations? Lexical metaphor is of relevance to all these issues but too little attention has been paid to it in the field of Austronesian historical studies (unlike, for example, Indo-European comparative studies). Therefore I appreciate Andrew Pawley's remark about the wealth of derived forms with idiomatic meanings in all major Polynesian languages in Pawley (1991:14). But metaphor is only one of several instruments of semantic change.

This paper deals with some aspects of the role of metaphor in the domain of kinship terminology in Malay (Indonesian) in comparison with several Austronesian languages, especially Javanese, Gayo and Maaori and with excursions into the phase of the reconstructed protolanguage. In Malay, and to a lesser degree in Gayo, Javanese and Maaori, there is sufficient evidence for more or less prolific *outward metaphorisation* where the domain of kinship terminology serves as a source of lexical metaphors; however, the historical-comparative method is not oversensitive to outward metaphorisation and thus in the postulated reconstructions we are confronted only with metaphorisation in the opposite direction – with *inward metaphorisation*, that is, from other conceptual domains into that of kinship.

The presence of metaphor (and of metonymy, synecdoche, etc.) within the domain of kinship terms comes as no surprise since these devices are believed to be central to language (cf. Fauconnier 1985:1), and to human thought and orientation in the surrounding world in general. Metaphor is a way (or rather one of several ways) of structuring conceptual domains or, in Fauconnier's terminology, of mental spaces – as well as an instrument of lexical motivation. The latter property renders inferences from language to phenomena observed in reality possible. The link between semantics and experience, however, is too complex to be deterministic. Therefore, the appearance of a new kinship term may, but need not, signal a transformation in the kin organisation – simply because new lexemes appear in the vocabulary not only for cognitive reasons (to fill in existing gaps) but also under affective pressures (such as politeness or taboo). This, among other things, contributes to the fact that any reconstruction is in principle open-ended and incomplete and that the inferences from language to reality are only hypothetical.

Since the kinship terminology undergoes incessant if slow change, there is always a certain ratio of semantically transparent, motivated terms such as Proto Austronesian (PAN)

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Pacific Linguistics, C-127, 1994.

makempu* 'grandchild' (Chowning 1980:232) versus primary, opaque ones, such as PAN **anak* 'child'. This holds not only for Austronesian but also for other language families. For example, the set of Indo-European kinship terms (Gamkrelidze & Ivanov 1984:763-769) comprises both primary, opaque terms and semantically transparent terms – either compounds, for example, **s^{o}esor-* 'sister' (s^{o}e-* 'suus' + **sor-* 'woman') or derivations, for example, **su̯o-* // **sunu-* 'son' (cf. **seuH-* / **suH-* 'to give birth'), **p$^{[h]}$ot$^{[h]}$* 'husband' (the original meaning being 'chief, master'). There is evidence that some original names of address turned into names of reference, for example, **p$^{[h]}$ḫt$^{[h]}$er-* 'father', **maHt$^{[h]}$er-* 'mother'. Reciprocity is illustrated with **HauHo-*, documented both as 'grandfather' and as 'grandchild'.

A terminology is usually defined as a set of special lexical units denoting concepts whose semantics lacks modality and expressivity. Terms are notable for their maximum contextual autonomy, precision and absence of such semantic features as ambiguity, polysemy, synonymy and homonymy. Their conceptual content is expected to be defined or at least fixed (cf. Filipec & Čermák 1985:33-34). One might ask if the lexical units discussed here are terms in this sense. I am inclined to say that the answer ought to be positive. The terminological nature of kinship vocabulary is supported by its being a closely-knit set of interrelated and clearly delimited units. Truly enough, the meaning of words denoting kin relations has not been defined by any non-anonymous authority but their conceptual content is spontaneously fixed so that their meaning is less fuzzy than that of other types of lexemes. This implies a markedly lower degree of polysemy (including rarity of the occurrence of reciprocal terms) coupled with a high measure of contextual independence.

2. SEMANTIC CHANGES IN THE DOMAIN OF KINSHIP TERMS

Robert Blust's (1980b) paper on early Malayo-Polynesian kinship terms demonstrates that overlapping between the conceptual domains of nuclear family and wider social organisation (or even beyond it) is a very common phenomenon and the character of these extensions may be metaphorical, metonymical or synecdochical (cf. **Sua(n)ji* 'younger sibling' > 'relative', **Rumaq* 'house' > 'lineage', **ma(n)tuqaS* 'parent-in-law' < **tuqaS* 'ripe, mature, developed, old', and Dempwolff's **(tT)umpu* 'ancestor, Sir' analysed by Blust (p.214) as **t-ampu*, **t-empu*, **t-impu*, **t-umpu* 'ancestor, lord, master, owner). The same source term may be extended during the course of history in different directions. Thus, **tuqaS* gave *ma/tuqa* 'parent' in Proto Polynesian and *ma/tua* 'elder children' in Hova. Rotuman may also be quoted as an illustration that terms from the domain of age and status are routinely introduced into the domain of kinship, for example *o'i* 'parent, uncle, aunt' (plural *o'o'i*) for which the meaning "elder, senior, esp. older person in authority over one" is listed (Churchward 1940:276). After all, the German term *Eltern* 'parents' has the same etymology. It comes as no surprise that shifts of this kind repeatedly occur in linguistic history, compare Arosi *araha* 'great, chief' (*raha* 'big, great') < Proto Oceanic **qa-la(m)pas* 'chief, person of noble birth' and Arosi *ari'i* 'the eldest son of a chief' (*ɪi'i* 'small') < Proto Oceanic **qa-diki* 'first-born son of a chief' (Pawley 1982:39-42; Fox 1970:26,30).

Kinship terms, despite being part of the core vocabulary, are not immune to semantic shifts, which may have several motivations. As mentioned above, this semantic field is contiguous to other semantic fields, especially to the domains of social status and of age; it is from such semantic field(s) that new kinship terms are borrowed. Secondly, the kinship system within the society may undergo restructuring so that available terms now and then

have to be readjusted. Another reason for change, often through circumlocution (cf. Chowning 1980:232), may be seen in ritual avoidance; special terms of address are sometimes introduced into the microsystem. The latter are especially frequent within the immediate range of a baby's interest, comprising chiefly mother and father (cf. Indonesian *bapak*, Indo-European **p$^{[h]}$H-(t$^{[h]}$er-)*, **maH-(t$^{[h]}$er-)*, Austronesian **bahi*. These terms belong to a pool of spontaneous vocalisations (usually in reduplicated form) known throughout the world, such as *papa*, *tata*, *mama*, *baba*, *dada*.

At this point I should mention problems that sometimes arise when trying to determine the direction of semantic transfer. If a particular word, such as Austronesian **bahi* or Slavic *baba*, is one of the set of the abovementioned spontaneous vocalisations, then its original meaning probably belongs to the kinship domain ('grandmother') and the meaning 'woman' or 'old woman' is semantically secondary. In other instances we must rely on different rules of thumb, such as the shift from familiar to unknown or from concrete to abstract. And yet sometimes no rule would be of any help.

3. COGNITIVE ASPECTS OF KINSHIP TERMINOLOGY ANALYSIS

An analyst may view the kinship terms as clusters or congestions of features in a semantic field surrounded by other semantic fields. Let us reconsider the cognitive basis of these links.

Although kinship is one of the basic facts of human existence, its projection within vocabulary is not to be viewed as a set of ultimate semantic primes. Kinship terminology (in relation to other semantic fields) is both source and target of semantic operations such as metaphor, metonymy, synecdoche, extension, reduction. Persons linked by kinship bonds do at the same time represent a social unit and it is only natural that the social status definitions correlate with age, sex and position within the kin unit. Parents are both older and more respected than children and so are elder siblings vis-a-vis younger siblings or males vis-a-vis females. In other words, a kin unit consists of a group of persons that are, in addition to being genetically related, either older or younger, bigger or smaller, male or female, mature or immature, more or less esteemed, etc. The particular semantic parameters tend to correlate, which constitutes a basis for change and continuity within the domain of kinship terminology.

Our cognitive attack upon the reality outside and inside ourselves has an egocentric basis, that is, it starts from our human self and expands, radiating around, via perception and the subsequent interpretation of perceived data. These data have sense only upon the basis of a pre-existent heuristic hypothesis and although it remains unclear where the first cognitive hypothesis comes from or how it comes about, it may well be assumed that the process of cognition does not start from the abstract (or geometrical) centre of our psychophysical being but rather at the interface between ourselves and the rest of existence. This may help us understand what Wittgenstein (1969:175) has to say on the subject: "Das philosophische ich ist nicht der Mensch, nicht der menschliche Körper oder die menschliche Seele mit den psychologischen Eigenschaften, sondern das metaphysische Subjekt, die Grenze (nicht ein Teil) der Welt". The advance of cognition, however, is not only an outward march but also a vigorous attempt to penetrate the interior of human existence, and it is here that the quotation from Wittgenstein ought to be completed: "Der menschliche Körper aber, mein Körper

insbesondere, ist ein Teil der Welt unter anderen Teilen der Welt, unter Tieren, Pflanzen, Steinen, etc. etc.".

4. KINSHIP TERMS AS A SOURCE OF LEXICAL METAPHORS

As mentioned before, outward metaphorisation is not well documented for PAN kinship terminology. However, this by no means implies their absence in the protolanguage. As proved by Indo-European, one of the promising lines of search for it may be seen in religion and mythology. Thus for Indo-European we have the reconstruction **t'i̯eu(s)-p$^{[h]}$ḫt$^{[h]}$er* 'God Father' (Gamkrelidze & Ivanov 1984:791) as the chief deity. No female parallel has been reconstructed for Proto Indo-European but the Ancient Greek expression *Dēmētēr* < **Gēmētēr* ('Mother Earth') corroborates the ubiquity of the kinship metaphor. This model is at least latently present in Polynesian cosmogony; compare the couple *Ranginui* ('Heaven', the original male god) and his wife *Papatuanuku* ('Earth').

Henceforth, our attention will be focused on the outward metaphorisation of the kinship terms, mainly in Malay, with references to Gayo, Javanese and Maaori. The conceptual domain of kinship is very active, representing the sole most important source of Malay lexical metaphors. It is part of the human cognitive interface that also includes elementary anatomy and basic vital functions. These three domains are interrelated aspects of human existence as a whole. Anatomical terminology reflects an elementary internal structuring of human physical being in terms of parts and whole relations; the vital functions are its inputs and outputs, relating it to its immediate environment, while kinship terms reflect causal dependence upon the pressures of (some of) the vital functions as well as upon the social nature of human beings, representing the mutual relations of individuals within a structured social milieu. Terms from all three domains embody a pool of cognitive metaphors as devices that are so fundamental as to be applicable to other phenomena in an effort to unveil their essence and structure. Application of these domains to other conceptual areas is based on the assumption of an essential homogeneity of the reality, on parallels, analogies and similarities.

Competing metaphors (or, in this instance, metaphorical models) are a common enough phenomenon in Malay; two different source domains are sometimes applied to one and the same target domain in order to suggest different connotations. Thus anatomical metaphors seem to accentuate that one has to do with a higher degree of integrity than is the case with kinship metaphors, compare Malay (Indonesian) *matapanah* 'arrowhead' (roughly 'eye of an arrow') versus *anak busur* 'arrow' (analysable as 'child of a bow'), or *kepala susu* 'cream' (i.e. 'head of milk') versus *ibu pasir* 'gravel' (literally 'mother of sand').

In these examples, the arrowhead is an integral part of an arrow while the arrow and the bow no doubt represent a much looser unity; likewise, cream is hard to separate from the rest of milk while gravel and sand are very easy to distinguish and sort out.

By no means all kinship terms are productive as metaphorical vehicles in the languages discussed here. While Malay *bapa* 'father' may be used with the meaning of 'founder', 'creator', and *saudara* 'brother' with the pronominal function of 'you' (the semantic basis is too obvious in both instances), only two terms are widely employed for the metaphorical extension of Malay vocabulary, namely *anak* 'child' and *ibu* 'mother' (as well as its synonyms or near-synonyms *induk* and *biang*). The meaning of *anak* 'child' is defined as (1) a direct descendant of the parents, and (2) an immature person cared for by grown-up people, while 'mother' is defined as (1) a female parent of human offspring, and (2) a

woman who cares for immature children. The virtual absence of 'father' in the inventory of lexical metaphors needs some explanation. Father is perceived as the person responsible for the whole family and that is why the idea of protectorship, primeval creativity and respect looms large in the semantic characteristics of this word. The relationship between father and mother is asymmetrical from the point of view of the child, and the latter forms a natural, compact and immediate unit with its mother.

The lexicographic characteristics of the meaning of child and mother are laconic: a prototypical child may be defined as an immature person taken care of by both of its biological parents, having siblings, and perhaps living together with both its parents and siblings; and a prototypical mother would likewise be a mature female person taking care of her biological offspring and living together with them and with their father.

Whenever *anak* 'child' or *ibu* 'mother' are used, the communicants obviously have the prototypes of these concepts in their minds although they may occasionally be confronted with referents that do not meet all of the diagnostic criteria. But what happens when *anak* or *ibu* are applied to areas other than that of the narrow family circle? We are well aware that bullets are no children of guns, despite the fact that Malays call them *anak bedil*, just as we know that gravel is no mother of sand, notwithstanding the Malay expression *ibu pasir*. We may ask the question what is left and what is lost of the prototypical semantic spectrum if a word is used metaphorically. The answer is its salient features – historical investigation of metaphor is useful among other things because metaphors help us detect those semantic features that are salient. But we have to take into account that the notion of saliency may vary in time.

In several dictionaries of Malay and Indonesian some thirty lexical metaphors of *anak* 'child' and somewhat fewer metaphors based on *ibu*, *biang* or *induk* 'mother' have been found (Korigodski, Kondrashkin & Zinoviev 1961; Echols & Shadily 1963; Wilkinson 1961) and analysed. They are listed below.

5. A SEMANTIC ANALYSIS OF LEXICAL METAPHORS BASED ON KINSHIP TERMS IN MALAY (INDONESIAN)

The semantic basis of the lexical metaphors based on *anak* 'child' makes a threefold classification possible:

(1) Metaphors in which the feature of origin or cause versus result seems to play the dominant role:

anak bedil	'bullet' (child of the gun)
anak busur	'arrow' (child of the bow)
anak panah	'arrow' (child of the bow)
anak duit	'interest' (child of money)
anak tekak	'uvula' (child of the throat)
anak mana	'where from?' (child of where)

(2) Metaphors in which the feature of subordination and dependence play the major role:

anak negeri	'subject of a country' (child of the country)
anak kapal	'crew' (children of the ship)
anak perahu	'crew' (children of the boat)
anak méja	'drawer' (child of the table)
anak jentéra	'wheel spoke' (child of the wheel)

anak loncéng	'bell clapper' (child of the bell)
anak genta	'bell clapper' (child of the bell)
anak mata	'pupil' (child of the eye)
anak sungai	'tributary' (child of the river)
anak tangga	'rung, stair' (child of the staircase)
anak telinga	'tympanum' (child of the ear)
anak timbangan	'weights' (child of the scales)
anak kalimat	'subordinate clause' (child of the sentence)
anak tangan	'finger' (child of the hand)
anak tari	'dancer' (child of dance)
anak obat	'patient' (child of medicine)
anak limpa	'gall bladder' (child of the liver or of the spleen)
anak baju	'undershirt' (child of the blouse)

(3) Metaphors in which the feature of a relatively small size is of importance:

anak rambut	'lock of hair' (child of hair)
anak kunci	'key' (child of the lock)
anak rambut	'man's receding hairline' (child of hair)
anak bukit	'hillock' (child of the hill)
anak lidah	'uvula' (child of the tongue)
anak saku	'small pocket' (child of the pocket)

As expected, a threefold grouping may be established with the metaphors centring on 'mother' *(ibu, biang, induk)* as their vehicle:

(1) Metaphors in which the feature of origin or cause comes into the foreground:

ibu pasir	'gravel' (mother of sand)
ibu akar	'main root, taproot' (mother of roots)
induk madu	'honeycomb' (mother of honey)
induk cuka	'essence of vinegar' (mother of vinegar)
biang roti	'leaven' (mother of bread)
biang keringat	'prickly heat' (mother of sweat)

(2) Metaphors in which the feature of superiority is dominant:

ibu kota	'capital city' (mother of cities)
ibu negeri	'capital city' (mother of the country)
ibu kunci	'lock' (mother of the key)
ibu sungai	'principal, main river' (mother of rivers)
ibu tangga	'bannister' (mother of the staircase)
ibu tentara	'the main body of the army' (mother of the army)
induk kalimat	'main clause' (mother of the sentence)
induk karangan	'editorial' (mother of the composition)

(3) Metaphors that accentuate the feature of a relatively big size:

ibu jari	'thumb' (mother of the fingers)
induk jari	'thumb' (mother of the fingers)
ibu kaki	'big toe' (mother of the toes)
ibu tangan	'thumb' (mother of the hand)
biang tangan	'thumb' (mother of the hand)
induk utang	'principal debt' (mother of debts)

It is obviously not chance that just two kin terms are usually metaphorised, terms that complement each other in a logical opposition. They may be represented as a single variable that acquires two opposite values, that is, 'child' *(anak)* and 'mother' *(ibu, induk, biang).* It comprises three focal features: (1) cause and effect, or resultativeness; (2) superiority and subordination, or dependence; and (3) bigger and smaller, or relative size.

These features are not independent, but closely linked together by metonymical relations since cause is perceived to be superordinate just as any superordinate thing tends to be big; on the other hand, result is no doubt subordinate to cause and, finally, what is subordinate tends to be small. This is part of the prototypical characteristics of the semantic fields of mother and child which are easier to perceive as a whole than to analyse into clearly delimited components.

Their syntax also contributes to their semantics. These lexical metaphors are constructed as schematic structures: (1) 'child + lexeme', and (2) 'mother + lexeme'.

In scheme (1), the pressure of its structural linkage forces the lexeme into the functional position of 'mother', for example, in the metaphor *anak duit* 'interest', *duit* 'money' is projected into the functional position of the mother of interest, which means that both terms contribute to the figurativeness of the whole.

In scheme (2), an analogous pressure forces the lexeme to be perceived as referring to a child, for example, in *ibu pasir* 'gravel', the second term *pasir* 'sand' is projected as 'child' of which 'gravel' is 'mother'.

6. KINSHIP METAPHORS IN OTHER AUSTRONESIAN LANGUAGES

In Maaori vocabulary, only a handful of metaphors of this kind are listed, with *tama* 'son, child' prevailing and *mokopuna* 'grandchild', *karawa* 'dam, mother' and *matua* 'parent, father' occurring only exceptionally:

tama (tuu ki) roto	'emotion, desire, craving, strong feeling' (child [standing] inside)
tama ngarengare	'penis' (tyrannous child)
tama a hara	'object of revenge' (child of sin/offence)
tai tamatane	'the sea on the west coast' (the virile sea)
tai tamawahine	'the sea on the east coast' (the feminine sea)
raa mokopuna	'a fine day in winter' (grandchild day)
karawa	'bed in the garden' (dam, mother)
matua	'main, chief, important' (parent, father)
matua	'hull or body of a canoe' (parent, father)

Typically, these metaphors are, unlike those listed for Malay, not neutral, basic lexemes but only stylistic devices. Sporadical lexical metaphors based on kinship are attested for other Polynesian languages, for example, Hawaiian *makua* 'benefactor, provider; main stalk of a plant' (basic meaning 'parent'), *keiki* 'shoot of a plant, *keiki hānau o ka 'āina* 'native of the country', literally 'child born from the country' (Pukui & Elbert 1957:213,131-132); Samoan *tama a le 'ele'ele* 'a man born and bred in a particular village', literally 'child of the earth', *tama a le mata* 'eyeball', that is, 'child of the eye' (Milner 1966:239); Tikopia *tama forau* 'visitor, stranger' and also 'breadfruit crop', literally 'voyaging child' (Firth 1985:478); Nukuoro *dama lalo* 'person who has visited other far-away lands, that is, 'child

of below', *dama ulungi* 'a man good at catching tuna with a fishing pole', literally 'child of steering a canoe' (Carroll & Soulik 1973:45).

The situation in Gayo is more reminiscent of Malay than is that of Maaori. The term *anak* 'child' is the vehicle of quite a few lexical metaphors:

anak n awal	'young shoots of a pisang tree' (child of pisang)
anak n bĕdil	'bullet'(child of the gun)
anak n bèlèk	'vagina' (child of a split)
anak boeah	'subject, serf'
anak n kalah	'uvula' (child of the uvula)
anak kampoeng	'inhabitant of a village' (child of a village)
anak ni kité	'step of stairs' (child of the stairs)
anak ni kòbòh	'light foam' (child of the foam)
anak ni koentji	'key' (child of a lock)
anak ni mata	'pupil of the eye' (child of the eye)
anak nangket	'arrow' (child of sumpitan)
anak ni kès	'match' (child of a matchbox)
anak toeng	'a package of tobacco' (child of a box)
anak nĕgri	'inhabitant of a country' (child of the country)

Exactly as in Malay, *inö* 'mother', occurs much less frequently in lexical metaphors of Gayo than *anak* 'child'. Several examples are listed below:

inö kiding	'big toe' (mother of the foot)
inö poemoe	'thumb' (mother of the hand)
inö n koetoe	'a big louse' (mother of lice)
inö ni koening	'Curcuma seeds reserved for sowing' (mother of Curcuma)
inö ni oewak	'the most important component of a medicine' (mother of medicine)

Judging by the available dictionaries, kinship metaphors are fairly infrequent in Javanese, a language quite closely related to Malay; most of them are listed below:

anak	'shoot of a plant' (*anak* 'child')
anakan	'interest on money' (*anak* 'child')
anak koempeni	'soldier' (child of company)
nganaki	'to pay interest' (*anak* 'child')
goenoeng anakan	'a lower hill next to a higher mountain, continuation of a mountain' (child of a mountain)
sagara anakan	'bay, gulf'

These are primary, stylistically unmarked terms and one cannot rule out the possibility that some of them are borrowings from Malay.

A tentative comparison of the Malay situation with other Austronesian languages seems to indicate that kinship terms are metaphorised on a much larger scale in Malay than in Gayo, Javanese or Maaori. The frequent occurrence of lexical metaphors in Malay may be due to Malay's functioning as a major language of interethnic communication, in which situation a maximum semantic transparency is highly valued (cf. Menn 1989:340).

7. CONCLUSIONS

A kinship system comprises a group of persons that are, in addition to being genetically related, either older or younger, bigger or smaller, male or female, mature or immature, more or less esteemed, thus creating a basis for overlapping of several semantic domains. The particular semantic parameters tend to correlate, which constitutes the basis for change and continuity within the domain of kinship terminology. Kinship terms are not immune to semantic shifts because, (1) the kinship system may undergo restructuring so that the appropriate terms now and then have to be readjusted, and (2) the semantic field of kinship terms is contiguous to other semantic fields or overlaps with them, especially with the domain of social status; it is precisely from such semantic field(s) that new kinship terms are borrowed. The conceptual domain of age also ought to be taken into account (terms for young and old), and another reason for change, often through circumlocution, may be seen in ritual avoidance. Special terms of address are sometimes introduced into the microsystem and they may be expected to be frequent within the immediate range of a baby's interest, comprising chiefly mother and father.

Kinship terminology is both source and target of semantic operations such as metaphor, metonymy, synecdoche, extension, reduction, etc. The operation of such devices within the domain of kinship terms comes as no surprise since these devices are central to language and to human thought.

Kinship terms represent the sole most important source of Malay lexical metaphors in the domains of elementary anatomy and basic vital functions. By no means all kinship terms are productive as metaphorical vehicles. In Malay only two terms are widely employed for the metaphorical extension, namely *anak* 'child' and *ibu* 'mother' (as well as its synonyms or near-synonyms *induk* and *biang*). Whenever *anak* 'child' or *ibu* 'mother' are used, the communicants have the prototypes of these concepts in their minds although they may occasionally be confronted with referents that do not meet all of the prototypical criteria. But what happens when *anak* or *ibu* are applied to areas other than that of the narrow family circle? The answer is, their salient features will be preserved but we have to take into account that the notion of saliency may vary in time.

The semantic basis of the lexical metaphors based on *anak* 'child' makes a threefold classification possible: (1) metaphors in which the feature of origin or cause versus result seems to play the dominant role; (2) metaphors in which the feature of subordination and dependence play the major role; and (3) metaphors in which the feature of a relatively small size is of importance.

A threefold grouping may likewise be established with the metaphors centring on 'mother' *(ibu, biang, induk)* as their vehicle: (1) metaphors in which the feature of origin or cause comes into the foreground; (2) metaphors in which the feature of superiority is dominant; and (3) metaphors that accentuate the feature of a relatively big size.

A comparison of Malay with other Austronesian languages seems to indicate that kinship terms are metaphorised on a much larger scale in Malay than in Gayo, Javanese or Maaori. The more frequent occurrence of lexical metaphors in Malay is at least partly due to Malay's sustained use as a major language of interethnic communication. The latter situation probably favours the vocabulary expansion by means of composition based on cardinal metaphors (cf. certain phases of the development of pidgins) because such compounds are notable for their semantic transparency.

SOME PLANT NAMES IN FORMOSAN LANGUAGES

PAUL JEN-KUEI LI

1. INTRODUCTION

The study of flora and fauna has provided fruitful results in the field of Austronesian linguistics in the past 100 years or so. It has shed light not only on the cultural history of the Austronesian-speaking peoples, but also on the location of their original homeland or early settlements.

The first scholar to apply this method to Austronesian studies, to my knowledge, was Hendrik Kern (1889). Based on a comparative study of 113 Austronesian languages, he reconstructed some 30 Proto Austronesian cognate sets, which included mostly plant and animal names, including: sugarcane, coconut, bamboo (four species), rattan, cucumber, stinging nettle, a plant used for poisoning fish, taro, banana, pandanus, yam, rice (three types), shark, squid, lobster, rayfish, turtle, crocodile, eel, mosquito, fly, pig, dog, rat, head louse, nit, spider, heron, iron, boat. Based on the types of these tropical plants he inferred that the Proto Austronesian people probably resided in the tropics.

Kano (1941a) believed that "plant geography often occupies an important position in the study of ethnology...and that studies of cultivated plants furnish the answers to certain questions of racial migration, cultural contact, etc.". He suggested three possible routes for the cultural migration of Formosan tribes from the Philippines, based on the study of six cultivated plant names, breadfruit (*Artocarpus communis*), Fiji longan (*Pometia pinnata*), *Semecarpus vernicifera*, *Musa texitilis*, *Acacia confusa* and *Dioscorea fasciculata*, as well as the original localities of these cultivated plants outside Formosa and their geographical restriction to the eastern coast of Formosa (inhabited by the Amis and Kavalan tribes) and the narrow area in southern Formosa (occupied by Paiwan). This phenomenon will be discussed further in section 4.

In this paper we discuss not only some of the above-mentioned plant names but also many others found in Formosan languages. Some of the plant names are duly reconstructed as Proto Austronesian (PAN) or Proto Hesperonesian (PHN) (= Proto Western Austronesian), while the others are reconstructable but geographically restricted to the area of Taiwan. Since Tsuchida (1977) discussed 54 mostly cultivated plant names in Formosan languages, we shall avoid repeating the same plant names unless we have new data.

Some plants are indigenous and others are non-indigenous to Taiwan. Indigenous plants include yam, *Alocasia* (an inedible type of taro), tomato, loquat, pine tree, maple tree, soapberry and persimmon. Non-indigenous plants include rice, sorghum, maize, sugarcane, banana, pomelo, plum, peach, mango, sweet potato, taro, pumpkin, cucumber, gourd,

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melon, sesame, eggplant, garlic, chilli pepper, ginger, beans and peas.[1] Some plants are cultivated and others non-cultivated. Cultivated plants include rice, millet, maize, sugarcane and sweet potato. Non-cultivated plants include camphor laurel and the zelkova tree.

In this paper we examine (1) plant names that relate Formosan languages to Austronesian languages outside Formosa, that is, with PAN or PHN cognates (e.g. PAN **quway* 'rattan', PAN **pag'ey* 'rice') and (2) plant names that relate only to Formosan languages, that is, Proto Formosan (PFN) or lower-level cognates that are exclusively shared by some Formosan languages (e.g. PFN **DaRa* 'maple tree', PFN **baŋas* '*Melia azedarach*').

Some PAN or PHN cognates are quite widespread among the Formosan languages (e.g. PAN **quway* 'rattan', PAN **kaSuy* 'tree'). Some cognates are retained only in a few languages (e.g. PAN **tuba* 'fish poison', PHN **taNiuD* 'mulberry', PHN **pahpah* 'flower'). PAN **[d'ð]awa* is retained only in Puyuma *dawa* 'millet'. PAN **n'iuR* 'coconut' is completely lost in all Formosan languages.

I have collected some 300 plant names from Formosan informants by showing them coloured photographs of the plants. These include only the 14 languages that are still extant. Unless stated otherwise, each of these Formosan languages is generally represented by a major or important dialect: Atayal by Mayrinax, Sediq by Tongan, Tsou by Duhtu, Rukai by Budai, Bunun by Takituduh, Paiwan by Tjubar, Puyuma by Pinan, Saisiyat by Ta?ai, and Amis by Sakizaya. The other languages, Kanakanavu, Saaroa, Thao and Kavalan, have only one dialect each. The extinct Formosan languages, Taokas, Babuza, Favorlang, Papora, Hoanya, Siraya, Basay and Ketangalan, are based on various written records (see Tsuchida 1982, 1985).

The natives used to live on edible plants such as millet, rice, taros, sweet potatoes and *Lactuca indica*. They still use some herbs, such as *Ebulus formosana*, to cure disease or heal wounds. Certain plants are sacred in the sense that they are used to perform ritual ceremonies. Dozens of plant names are reconstructable for early stages of Austronesian.

As Tsuchida (1977) points out, some non-cultivated indigenous plants, which are important to the daily life of the Formosan natives, are prevalent on the continent of Asia, yet their corresponding names are not found in insular Indonesia. These include PFN **layaD* '*Ebulus formosana*', PFN **samaq* '*Lactuca indica*'. Since Tsuchida (1977) did not have time to include these plant names in his study, we will do so in this paper.

2. CONVENTIONS AND ABBREVIATIONS

The reconstructions and their supporting data are listed in Appendix 1 of this paper.

In this study, the Proto Austronesian symbols generally follow Otto Dempwolff (1934-38), but with the subsequently revised phonemic distinctions between $*t_1$ and $*t_2$, $*n_1$ and $*n_2$ which were originally proposed by Ogawa and Asai (1935:6-7), as well as the additions of **q* and **s* (**S* in Dyen 1971a and $*S_1$ in Dahl 1981), and */ (*S_2 in Dahl 1981). The symbols $*t_1$ and $*n_1$ are written as plain **t* and **n* respectively, while **C* stands for $*t_2$ and **N* for $*n_2$. Dempwolff's **j* and **v* are written as **y* and **w* respectively, as originally

[1] Non-indigenous plants are marked by an asterisk before the Latin botanical name in our comparative wordlist, as indicated in Tsuchida (1977). In Sasaki (1928) and Hsieh and Yang (1969) non-indigenous plants are indicated by italicised letters.

suggested by Dyen. The small **h* is adopted for **H*, originally reconstructed by Dyen (Tsuchida's $*H_1$), and **H* for Tsuchida's (1976) and Dahl's (1981) $*H_2$.

The following conventions generally follow Tsuchida (1977):

1. The symbols <A, <D and <M in parentheses after a cited form indicate the sporadic changes, assimilation, dissimilation and metathesis, respectively. Immediately after <A, the change segment is followed by the expected segment and separated by a slash, for example, PHN **t'aleŋ* 'pine tree' > Bun *caaŋ* (<A *a/u*) 'torch'.

2. The symbol *ɬ* stands for a voiceless lateral and *c* for a dental affricate [ts].

3. An asterisk before a Latin botanical name indicates that the plant is non-indigenous to Taiwan, as indicated in Tsuchida (1977).

4. A numeral preceding a plant name in each Formosan language indicates that the forms with the same numeral are cognates and reflexes of a reconstructed protoform given above in the same column. In general, non-cognate forms are not cited where there is only one cognate set reconstructable for a plant name.

5. An ambiguous reconstruction is indicated by square brackets with two possible protophonemes, for example, PAN **sem[ae]y* 'cooked rice', which indicates that the second vowel is indeterminable as to whether it was **a* or **e*.

6. Parentheses around a protophoneme or sequence of protophonemes indicate that what is enclosed constitutes the only difference between two protoforms. Thus **Du(k)Duk* means that the two protoforms, **DukDuk* and **DuDuk*, are reconstructed. Loanwords or suspicious cognates (with one or two aberrant segments) are also put in parentheses.

ABBREVIATIONS OF LANGUAGE AND DIALECT NAMES

AMI(F)	Amis (data from Fey 1986)	HNO	Hanunoo (Philippines)
AMI(Fa)	Amis, Fataʔan dialect	HOA	Hoanya (Formosan, extinct)
AMI(Fr)	Amis, Farangaw dialect	HOV	Hova (= Merina), Malagasay
AMI(Sa)	Amis, Sakizaya dialect	ILK	Ilokano (Philippines)
ATA(Ms)	Atayal, Maspaziʔ dialect	IN	Indonesian
ATA(Mt)	Atayal, Matabalay dialect	ITB	Itbayaten (data from Tsuchida et al. 1987)
ATA(Mx)	Atayal, Mayrinax dialect		
ATA(Pl)	Atayal, Pilngawan dialect	IVA	Ivatan, Isamorong dialect (data from Tsuchida et al. 1987)
ATA(Sk)	Atayal, Skikun dialect		
ATA(Sq)	Atayal, Squliq dialect	JAV	Javanese
BAB	Babuza (Formosan, extinct)	KAN	Kanakanavu
BAS	Basay (Formosan, extinct)	KAV	Kavalan
BTK	Bontok (Philippines)	KET	Ketangalan (Formosan, extinct)
BUN(Is)	Bunun, Ishbukun dialect		
BUN(Tb)	Bunun, Takbanuaz dialect	MAL	Malay
BUN(Td)	Bunun, Takituduh dialect	NMF	Numfor and Biak islands, Teluk Sarera (New Guinea)
BUN(Th)	Bunun, Takibakha dialect		
CEB	Cebuano (Philippines)	OJV	Old Javanese
FAV	Favorlang (Formosan, extinct)	PAI(Bu)	Paiwan, Butanglu dialect
FIJ	Fijian	PAI(F)	Paiwan (data from Ferrell 1982)
GAD	Gaddang (data from Reid 1971)	PAI(H)	Paiwan (data from Ho 1978)

PAI(St)	Paiwan, Stimul dialect
PAI(Tb)	Paiwan, Tjubar dialect
PAN	Proto Austronesian
PAP	Papora (Formosan, extinct)
PAT	Proto Atayalic (see Li 1981)
PAZ	Pazeh
PFN	Proto Formosan
PHN	Proto Hesperonesian, Proto Western Austronesian
PKA	Proto Kavalan-Amis
PNF	Proto Northern Formosan (see Li 1985)
PNG	Pangasinan
PPP	Proto Paiwan Puyuma
PR	Proto Rukai (see Li 1977)
PRT	Proto Rukai-Tsouic (see Tsuchida 1976)
PSF	Proto Southern Formosan
PSP	Proto Saisiyat-Pazeh
PST	Proto Southern Tsouic (see Tsuchida 1976)
PT	Proto Tsouic
PUY(Kl)	Puyuma, Katipul dialect
PUY(Lp)	Puyuma, Lower Pinlang dialect
PUY(Pn)	Puyuma, Pinan dialect
RUK(Bu)	Rukai, Budai dialect
RUK(Mg)	Rukai, Maga dialect
RUK(Mn)	Rukai, Mantauran dialect
RUK(Ta)	Rukai, Tanan dialect
RUK(To)	Rukai, Tona dialect
SAA	Sa'a
SAI(Ta)	Saisiyat, Ta?ai dialect
SAI(Th)	Saisiyat, Tungho dialect
SAL	Samar-Leyte
SAM	Samoan
SAN	Sangir, Great Sangir Island, Philippines
SAR	Saaroa
SED(Td)	Sediq, Toda dialect
SED(Tn)	Sediq, Tongan dialect
SED(Tr)	Sediq, Toroko dialect
SIR	Siraya (Formosan, extinct)
TAG	Tagalog
TAO	Taokas (Formosan, extinct)
TBA	Toba
THA	Thao
TON	Tongan
TSO	Tsou, Duhtu dialect
YAM	Yami, Imurud dialect

3. DISCUSSION

3.1 EXTRA-FORMOSAN AND INTRA-FORMOSAN COGNATES

The fact that PAN or PHN cognates for some plant names are not found in any of the Formosan languages seems to indicate that these plants might have been introduced to Taiwan after the Proto Austronesian-speaking peoples broke up into separate groups and PAN split into separate subgroups. These plant names include coconut, banana (#31), sweet potato (#37), and perhaps also taro (#35). Our evidence for these plant names indicates that Formosan cognates are not related to the ones in the extra-Formosan languages.[2]

The following plant names have reflexes on Formosan and extra-Formosan languages: PAN **paŋuDaN* 'pandanus, pineapple', PHN **t'aleŋ* 'pine tree', PAN **qauR* 'type of bamboo', PAN **buluq* 'type of bamboo', PAN **kawayan* 'type of bamboo', PHN **taNiuD* 'mulberry', PAN **tuba* 'fish poison', PAN **quway* 'rattan', PAN **tebuʃ* 'sugarcane', PAN **pag'ey* 'rice plant', PHN **beRat* 'husked rice', PAN **sem[æ]y* 'cooked rice', PHN **baNaR* '*Smilax*', PHN **quʃuŋ* 'type of mushroom', PHN **-amiCi* '*Solanum nigrum*', PAN **biRaq* '*Alocasia*', PHN **quNuNaŋ* 'plant with small sticky fruits', PHN **baNhiR* 'cypress'. Most of the other plant names included in this study are items exclusively shared by Formosan languages, such as PFN **beNbeN* 'banana', PFN **CaLiH* 'taro', PFN **buŋa*

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2 If one accepts Blust's (1977a) hypothesis, which treats three Formosan subgroups (Atayalic, Tsouic and Paiwanic) as constituting the highest order PAN subgroups, then any plant names that appear in two Formosan subgroups can be reconstructed as PAN cognates.

'sweet potato', PFN **Ritu* 'loquat', PFN **NayaD* '*Ebulus formosana*', PFN **DaRa* 'maple tree', PFN **tanaq* '*Aralia decaisneana*', PFN **Dakeʃ* 'camphor laurel', PFN **samaq* '*Lactuca indica*', PFN **baŋas* '*Melia azedarach*'. Most plants of the latter type are indigenous and important to the daily life of the Formosan natives.

3.2 PLANT NAMES AND CULTURE HISTORY

As mentioned in section 1, Kano (1941a) expected to uncover the migration history of the Formosan natives by studying the original source of some of their cultivated plants. Among the six cultivated plants discussed in his paper, he found that the Yami plant names for both 'breadfruit' (see #77, Appendix 1) and 'Fiji longan' (#78) closely resembled some of the plant names in the Philippine languages, especially the Batanic languages. The plants were found only in or near the coasts of Botel Tobago where the Yami had lived. He further found that the Amis people in the northern part of the east coast of Taiwan also cultivated these two plants in their villages. He then inferred that the Yami and Amis peoples might have migrated from the Philippines to Taiwan with these plants during prehistoric times.

In support of half of Kano's hypothesis, there is abundant linguistic evidence for the close genetic relationship between Yami and the languages of the Batan Islands in the northern Philippines; see, for instance, Tsuchida et al. (1987). The oral traditions of the Yami also confirm that their ancestors originally came from the Philippines only a few hundred years ago.

However, the Amis on Taiwan seem to have a different relationship with the Philippines. Their terms for these plant names show no resemblance to the Philippine languages at all. Kano was probably correct in inferring that these plants were introduced to the east coast of Taiwan by the Amis. But it might be more appropriate to say that the introduction was made in the Amis contact with the Philippine people, rather than during the early migration of the Amis, wherever they originated from, to the east coast of Taiwan.

Amis, Puyuma and Kavalan in the east and north-east coast of Taiwan seem to have had a close relationship with some northern Philippine languages such as the Batanic, perhaps due to borrowing. For instance, the word for 'cucumber' (#66) is PUY(Lp) *vilawur*, KAV *venauR* (*-e-* irregular), AMI(Sa) *biðauL*, YAM *viraur* (*-r-* irregular). Cucumber is non-indigenous to Taiwan. The plant and its terms were probably introduced to these Formosan tribes in the east via Yami on Botel Tobago.

According to Kano, the fibre of the plant, *Musa texitilis*, was called 'Manila hemp' or *abaka*. The Philippine people have used the fibre to make their clothes since ancient times. The Yami term for this plant was also *avaka*, and was used to make string or ropes, nets, clothes, sails, etc. The Kavalan people in the north-eastern part of Taiwan, also made their clothes from *abaka* until recently. Kano believed that this was due to Philippine cultural influence in the area of "*abaka* culture".

It seems clear that cultural contact and trade between some of the Formosan natives and the Philippine people were much more frequent and common in the past than they are today. For instance, the Kavalan word *bilang* 'to count' is obviously a loanword from one of the

Philippine languages.[3] It is not surprising that they influenced and borrowed from each other both culturally and linguistically.

Evidence from the six cultivated plants as presented in Kano's (1941a) paper indicates that there must have been close cultural contact between the Philippine people and some of the Formosan tribes in the eastern and southern coastal areas of Taiwan, namely Kavalan in the north-east, Amis on the east coast and Paiwan in the southern extremity of Taiwan. However, I do not think there is enough evidence to prove that these Formosan tribes migrated to Taiwan with these plants from the Philippines in the south, as Kano suggests in his paper.

There is more evidence for Formosan borrowings from the Philippine languages in some other plant names such as 'mango' and 'persimmon'. The borrowing was not limited to Amis, Kavalan or Paiwan, as we can observe in the following examples (see also Tsuchida 1977:111-112):

#84			#85		
'mango (**Mangifera indica*)'			'persimmon (*Diospyros* spp.)'		
PSF	1	**maŋeθ*	PSF	1	**qaDupa[Ry]*
PHN	2	**kamaya(q)*	PHN	2	**kamaya(q)*
PSP	4	**lakay*			
KAN	1	*maaŋase*	ATA(Mx)		*karohau*
SAR	1	*maŋesa*	TSO		*hcuu*
RUK(Ta)	2	*kamaya*	KAN		*maŋece*
RUK(Bu)	2	*kamaða*	SAR		*ʔasipi*
RUK(Mg)	2	*kamea*	RUK(Ta)		*rado*
RUK(To)	2	*kamaya*	RUK(Mg)		*rɨra*
RUK(Mn)	1	*maŋese*	RUK(Mn)		*aluʔuʔu*
BUN(Td)		*saŋiav*	BUN(Is)	1	*hadupað*
PAI(Bu)	1	*maŋes*	BUN(Tb)	1	*qadupal*
PAI(St)	2	*kamaya*	PAI(H)	2	*kamaya*
PAI(Tb)	1	*maŋes*			
PUY(Pn)	3	*LaT'uʔ*	PUY(Pn)	1	*ʔadupar*
				2	*kamaya*
THA		*ruprup*	PAZ		*xawixiʔ*
SAI(Ta)	4	*lakay*	KAV	1	*ʔinupal*
PAZ	4	*lakay*	AMI(Sa)	1	*qalupal*
				2	*kamaya, kayama*
AMI(Sa)	1	*naŋes* (*n-* irregular)	YAM	2	*kamala*
KAV	2	*kiamaʔ*	ITB	2	*kamaya*
SIR	2	*kameia* 'fig'	HNO	2	*kamaya* 'an *Ebenaceae* sp.'
YAM	3	*natuʔ*	CEB	2	*amaga*
ITB	1	*maŋga*			

As Tsuchida (1977:111, Note 1) points out, "If Ceb *amaga* '*Diospyros* spp.' is cognate, the [PHN] reconstruction will be **[q/k]amaRa*. Then the Formosan forms will have to be taken for Bashiic (i.e. Ivatan-Itbayaten-Yami) borrowing, and the Hanunoo word for North

[3] I am indebted to Robert Blust (pers.comm.) for bringing this to my attention. The Kavalan form does not show regular sound correspondences with the Philippine languages (see Li 1982).

Mangyan (i.e. Iraya, Alangan, Tadyawan on Mindoro) borrowing, where **R* > *y* is regular". In other words, the other Formosan languages, including Rukai, Puyuma and Siraya, have also borrowed plant names from the Philippine languages, as manifested in the peculiar sound change **R* > *y*.[4]

3.3 SEMANTIC SHIFTS

It is interesting to note the semantic shifts such as PAN **biRaq* '*Alocasia*' > 'leaf' (see #21), PAN **paŋuDaN* 'pandanus' > 'pineapple' (#1) in most Formosan languages. There are some sporadic semantic shifts in some particular Formosan language(s), for example, PHN **t'aleŋ* 'pine tree' > Bunun *caaŋ* (<A *-a/u*) 'torch, firewood' (#2), PAN **buluq* 'type of bamboo' > Paiwan *vuLuq* 'spear' (#4), PHN **pag'ey* 'rice plant, unhusked rice' > Kanakanavu *palai*, Pazeh *pazay*, Amis *panay* 'glutinous rice' (#9). The 'same' plant name may refer to different species or varieties of plant.

3.4 PLANTS WITH MEDICINAL USE

Quite a few plants have had medicinal uses by the natives in Taiwan, including guava, *Cibotium barometz* (Smith),[5] *Polypodium coronans* (Wall),[6] *Houttuynia cordata* (Thunb),[7] *Broussonetia papyrifera*,[8] *Ficus wightiana* (Wall),[9] *Morus australis* (Poiret),[10] *Elatostema edule* (C.B. Rob),[11] *Polygonum chinense L.*,[12] *Rumex crispus L.*,[13] *Amaranthus spinosus L.*,[14] *Portulace oleracea L.*,[15] *Bryopnyllam pinantum (Lam.)* (Kurz),[16] *Cassia torosa* (Cav.),[17] *Cassia tora L.*,[18] *Pueraria hirsuta* (Matsum),[19] *Geranium nepalense* (Sweet),[20] *Oxalis corniculata L.*, *Murraya paniculata* (Jack),[21] *Viala mandshurica W.*,[22] *Begonia aptera* (Hay),[23] *Melastoma candidum D.* (Don.),[24] *Cryptotaenia japonica* (Hassk),[25] *Solanum*

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4 I am indebted to Shigeru Tsuchida (pers.comm.) for bringing this to my attention.

5 This plant has been used to stop bleeding by applying its hairy part to the wound.

6 Its root or stem can be used to stop bleeding. The Tsouic and Rukaic languages employ the same terms to refer to this type of plant and to *Asplenium nidus* (#39).

7 It has commonly been used to improve urination by ingestion. It can also be applied to boils, sores and scabies to cure skin diseases or reduce infection.

8 It is used to cure vomiting, diarrhoea or dysentery; its new leaves can be applied to scabies.

9 Its milky sap can be used to reduce infection.

10 It is commonly used to cure snakebite and to reduce fever or infection.

11 It can be applied to wound; its fried leaves can be ingested to cure snakebite.

12 Its leaves are used to cure snakebite.

13 Its roots can be used to cure scabies or athlete's foot.

14 It is used to cure snakebite.

15 It has a similar medicinal use to *Houttuynia cordata* (Thunb).

16 Its leaves are commonly used to stop bleeding, to disinfect and cure skin diseases, knife wounds or snakebite.

17 Its leaves are used to cure wounds, a toothache or a stomach-ache.

18 Its fried leaves can be ingested to cure eye disease.

19 Its roots are used to reduce a fever.

20 It is used to cure fish poisoning, wounds, diarrhoea, intestine and stomach troubles.

21 It leaves and roots can be used to cure diarrhoea and dysentery; its leaves are effective for pain-killing and reducing infection.

22 It is used to relieve internal heat or a fever.

23 It is used to reduce infection, relieve a fever, or cure snakebite.

24 Its fried leaves can cure a stomach-ache; its crushed leaves can be applied to snakebite wounds.

nigrum L., *Ebulus formosana*, *Gardenia jasminoides* (Ellis),[26] *Bidens pilosa L.* var. *minor* (BL), *Citsium japonicum* DC.,[27] *Kalimeris indica*,[28] *Pogonatherum crinitum* (Thunb),[29] and even banana.[30] Unfortunately most of these plant names are not reconstructable for an earlier stage. Only a few of them can be reconstructed at the lower levels such as Proto Formosan, Proto Southern Tsouic (PST), Proto Northern Rukai (PNR, including Maga, Tona and Mantauran). Thus many of them are not included in this study.

3.5 FURTHER STUDIES

Thousands of plants in Taiwan have been identified by botanists. Only some of them have plant names in some Formosan languages. I have collected some 300 plant names in some Formosan languages and dialects over the past twenty years. However, I have listed only (1) those plant names that relate Formosan languages with extra-Formosan languages and (2) those plant names that relate only to Formosan languages. More work needs to be done. Linguists and botanists will have to cooperate to work in this area. Linguists have problems identifying plants, while botanists have problems giving reliable transcriptions, especially for these less well-known languages. We may get many more cognates and valuable information when more thorough work is done. Such an endeavour may take years, but it is well worth the effort.

According to reports by botanists, the flora on Botel Tobago is quite different from that on Taiwan. Quite a few plants indigenous to Botel Tobago are not found in Taiwan at all. A careful investigation of the fauna and flora on Botel Tobago was carried out in 1988. Similar investigations need to be carried out on the Batanic Islands in the Philippines to determine whether Botel Tobago and these islands share the same fauna and flora. Joint efforts by linguists, botanists and zoologists will produce much more fruitful results.

APPENDIX 1: COMPARATIVE WORDLIST OF PLANT NAMES

#1 'pineapple (*Ananas comosus* (Merr))' PAN **paŋuDaN*[31]		#2 'pine tree (*Pinus morrisonicola* (Hayata))' PHN **t'aleŋ*	
ATA(Mx)	*paŋran*	ATA(Mx)	*hauŋ*[32]
KAN	*(paŋtan)*[33]	SED(Tn)	*haruŋ*
SAR	*(paŋtał)*	TSO	*sroŋə*
RUK(Bu)	*paŋuDale*	KAN	*aleŋe*

25 Its fresh leaves are crushed and then applied to snakebites or wasp stings.
26 Its leaves or flowers are applied to reduce infection.
27 It crushed roots are applied to snakebites and are used to stop bleeding.
28 It is commonly used to cure stomach troubles or urinary problems.
29 It is used to stop bleeding or to relieve a fever.
30 Its crushed leaves are applied to swollen areas to reduce infection.
31 It is interesting to note the semantic shift from PAN 'pandanus' to 'pineapple' in most modern Formosan languages. Pandanus is not a common plant in the aboriginal villages in Taiwan.
32 ATA(Sq) /hayuŋ/ 'wood to start a fire'. ATA(Mx) /hauŋ/ is a female form, and its corresponding male form is /hayriŋ/.
33 As Tsuchida (1977) points out, both Kanakanavu and Saaroa forms are "most likely loanwords from one of the Rukai dialects on the evidence of /t/-reflex for **D* (there is no /d/ in either Kan or Sar)".

PAI(H)	*paŋuDalj*
PUY(Pn)	*paŋuDal*
SAI(Ta)	*paŋran*[34]
KAV	*panzan* 'pandanus'
JAV	*panDan*
SAM	*fala*

SAR	*aleŋe*
RUK(Bu)	*aLeŋe*
BUN(Td)	*caaŋ* (<A *a/u*) 'torch'[35]
PAI(H)	*tareŋ*
THA	*tarin*
SAI(Ta)	*hæLeŋ*
AMI(Sa)	*caLeŋ*
ILK	*saleŋ*
PNG	*saleŋ*

#3
'type of bamboo'
PAN **qauR*

ATA(Mx)	*qau-a-g*
TSO	*oru*
KAN	*ʔauru*
SAR	*ʔauru*
BUN(Td)	*qaul*
PAI(H)	*qau* (generic)
THA	*qawɬ* (generic)
SAI(Ta)	*ʔæuL*
AMI(Fr)	*qauL* (generic)
SAA	*aeu* 'bamboo'

#4-1
'type of bamboo'
PAN **buluq*

KAN	*vuluʔu*
RUK(Bu)	*buLu*
PAI(H)	*vuLuq* 'spear'
SAI(Ta)	*buLœʔ*
PAZ	*buruʔ*
AMI(Fa)	*buLuq*
SAM	*polo* 'bamboo knife'

#4-2
'type of bamboo'

PAN **kawayan*

RUK(Bu)	*kavaðane*
PAI(H)	*kavayan*
PUY(Kl)	*kawayan*

#4-3
'type of thin bamboo (*Sinobambusa kunishii* (Nakai))'
PSF **cekes*

RUK(Mn)	*cekeʔe*
PAI(H)	*cekes*
AMI(Fr)	*tekes* 'type of bamboo'

#5
'mulberry (*Morus formosensis* (Hotta))'
PHN **taNiuD*

ATA(Sq)	*tliuʔ*[36]
TSO	*taxzucu*
KAN	*taniucu*
SAR	*taɬiusu*
RUK(Bu)	*talioDo*
ITB	*tan'ud* (<A *n'/ni*)

#6
'fish poison (**Derris elliptica* (Benth))'
PAN **tuba*

ATA(Mx)	*ta-tubaʔ*
SED(Tr)	*tuba*
SAI(Ta)	*ta-tubaʔ*
PAZ	*ta-tubaʔ*
JAV	*tuba*
FIJ	*nduva*

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34 The final *n* instead of the expected *l* is probably due to the assimilation to the preceding nasal.

35 Note the semantic shift to 'torch, firewood' in Bunun. A pine tree was often used to start a fire and as a torch by the Formosan natives.

36 There is a metathesised form /tlui?/ in some Squliq dialects and in the Skikun dialect of Atayal.

#7
'rattan (*Daemonorops margaritae, Calamus margaritae*)'
PAN **quway*

ATA(Mx)	*qwa-ni?*
SED(Tn)	*qwa-rux*
TSO	*?ue*
KAN	*?uai*
SAR	*vui?i*
RUK(Bu)	*uvay*
BUN(Td)	*quað*
PAI(H)	*quway*
PUY(Pn)	*?uway*
THA	*quway*
SAI(Ta)	*?œway*
PAZ	*way*
KAV	*?uway*
AMI(Sa)	*quway*
GAD	*?uway*
SAA	*ue*

#8
'sugarcane (**Saccharum officinarum*)'
PAN **tebuʃ*

TSO	*təfsə* (<A *ə/u*)
KAN	*tevese* (<A *e/u*)
SAR	*i-teve* (<A *e/u*)
RUK(Bu)	*cubusu* (<A *u/e*)
PAI(H)	*tjevus*
THA	*tufuiʃ*
SAI(Ta)	*ka-tbuʃ*
PAZ	*tubus* (<A *u/e*)
KAV	*tevus*
AMI(Sa)	*tebus*
TAO	*topoe* (<A *u/e*)
PAP	*subud* (<A *u/e*)
FAV	*tuppoos* (<A *u/e*) 'sugar'
HOA	*sibus*
FIJ	*ndovu*

#9
'rice plant (**Oryza sativa*)'[37]
PAN **pag'ey*

ATA(Sq)	*pagay* (*-g-* irregular)
SED(Tr)	*payay* (*-y-* irregular)
TSO	*pai*
KAN	*palai* 'glutinous rice'
RUK(Bu)	*pagay*
BUN(Td)	*paað*
PAI(H)	*paday*
THA	*paðay*
SAI(Ta)	*pazay*
PAZ	*pazay* 'glutinous rice'
KAV	*panay*
AMI(Sa)	*panay* 'glutinous rice'
PAP	*pada*
HOA	*pa(d)za*
MAL	*padi*
HOV	*fari* 'sugarcane'
NMF	*fas*

#10-1
'rice (husked)'
PHN **beRat'*

TSO	*fərsə*
KAN	*veera*
SAN	*e-verae*
RUK(To)	*be?ase*
PAI(H)	*vaat* 'rice, kernel'
PUY(Pn)	*beras*
KAV	*veRas*
AMI(Sa)	*beLac*
SIR	*pchag* (<M *g/ch*) 'stamped rice'
BAS	*burac*
KET	*pulat*
MAL	*beras*

[37] Most Formosan languages have different terms for 'rice plant, unhusked rice', 'husked rice', and 'cooked rice'.

#10-2
'rice (cooked)'

PAN	**sem[ae]y*
PAZ	*sumay*
AMI(Sa)	*hemay*
KAV	*(ʔemay)*[38]
TAO	*suma*
BAB	*sma*
HOA	*(smai)*[39]
BAS	*sumay*
KET	*sumai*

#11
'tree'
PAN **kaʃuy*

ATA(Mx)	*kahuy*
SED(Tn)	*qhu-ni*
TSO	*evi*
KAN	*kaalu*
SAR	*kiuʔu*
PAI(H)	*kasiw*
PUY(Pn)	*kawi*
THA	*kawiʔ*
SAI(Ta)	*kæhœy*
PAZ	*kahuy*
AMI(Fr)	*kasuy* 'firewood'
BAB	*hau*
PAP	*hee*
HOA	*hai*
SIR	*kayu*
YAM	*kayu*
TAG	*ka:hoy*
TON	*ʔa-kau*

#12
'*Smilax*'
PHN **baNaR*

ATA(Mx)	*balag* '*Smilax opace* (A.DC) (Nort)'
SED(Td)	*balaw* '*Smilax opace*'
TSO	*fkorə* '*Smilax china*'
KAN	*vanare*
SAR	*vałare*
RUK(To)	*balaʔa* '*Smilax oxyphylla* (Wall)'
BUN(Td)	*banal* '*Smilax china/opace*'
PAI(H)	*valja*
THA	*fa-fałað*
SAI(Th)	*ba-bala*
KAV	*banaR*
ILK	*banag*
BTK	*banal* '*Smilax bracteata*'

#13
'vegetable'
PHN **NaCeŋ*

KAN	*nateŋ* (*-t-* irregular)
SAR	*łateŋ* (*-t-* irregular)
RUK(Bu)	*laceŋe*
PAI(H)	*ljaceŋ*
AMI(Fr)	*lateŋ*

#14-1
'type of mushroom (family Agaricaceae)'
PHN **quʃuŋ*

ATA(Mx)	*qhuŋ* (generic)
TSO	*uŋo* (generic)
KAN	*uuŋu*
SAR	*uʔuŋa* (<M)
RUK(Mg)	*ŋu-ŋu*

38 Kavalan may have borrowed its form from Amis in which the initial *h-* is also irregular.
39 Hoanya loses **-y*, so its *smai* may be a loan.

HOA	*lasen*
ILK	*nateŋ*
RUK(Mn)	*ʔuŋu*
BUN(Td)	*quuŋ*
THA	*quun*
ILK	*ooŋ* (generic)
CEB	*uhuŋ*

#14-2
'type of white mushroom'
PSF **baɬiw*

PUY(Pn)	*baliw*
KAV	*vaniw*
AMI(Fr)	*faniw*

#14-3
'type of white mushroom'
PRT **qunipi*

KAN	*ʔunipi*
SAR	*ʔunipi*
RUK(Bu)	*unipi*
RUK(Mn)	*(ʔunipi)*[40]

#15
'*Solanum nigrum*'[41]
PAN **samiCi*

TSO	*mici*
KAN	*m-amici*
SAR	*ɬ-amici*
RUK(Ta)	*amici*
PAI(H)	*samci*
PUY(Kl)	*ʔamTi*
THA	*q-amθiʔ*
BTK	*amti*

#16
'bark (of tree)'
PAN **kuliC*

TSO	*rici* 'peelings of tubers'
KAN	*kuici* 'peelings of fruit or tubers'
SAR	*kulici* 'peelings of fruit or tubers'
PAI(H)	*kuLic* 'penis'[42]
PUY(Pn)	*kuLiT*
SAI(Ta)	*kuLis* 'peel of fruit'
YAM	*kulit*
FIJ	*kuli* 'skin, bark, peel'

#17
'flower'
PHN **pahpah*

ATA(Mx)	*pahpah*
SED(Tn)	*phepah*
AMI(Sa)	*papah* 'leaf'
TAG	*p-al-a:paq* 'spring leaf'

#18
'branch, bifurcation'
PAN **paŋa*

THA	*panaʔ*
SAI(Ta)	*paŋaʔ*
PAZ	*paŋaʔ*
IN	*paŋaʔ* 'jaw'
SAM	*maŋa* 'fork, twig'

#19
'fruit'
PAN **buaq*

KAN	*vuaʔe* 'orange'[43]

#20
'sprout, bamboo shoot'
PAN **Cubuq*

KAN	*cuvuʔu* 'bamboo shoot'

40 Mantauran ʔ- indicates that it was probably a loan from Saaroa.
41 Its crushed roots or leaves are applied to swollen feet to detoxify or reduce infection.
42 Note the interesting semantic shift from 'bark, skin' to 'penis' in Paiwan.
43 Note the semantic narrowing in Kanakanavu.

PAI(H)	*vuaq* 'type of round edible tuber'
PUY(Pn)	*bua?*
BAB	*boa*
SIR	*voa*
TON	*fua*

SAR	*cuvu?u* 'bamboo shoot'
RUK(Bu)	*s-cubu*
RUK(Mn)	*?a-cuvu* 'treetop'
PAI(H)	*cuvuq* 'bamboo shoot'
AMI(Sa)	*(tabuq)*[44]
TON	*tupu* 'to grow up'

#21
'leaf (*Alocasia cucullata* (Schott))'[45]
PAN **biRaq*

RUK(To)	*bi?a* '*Alocasia*'
RUK(Mn)	*vi?a* '*Alocasia*'
PUY(Pn)	*bira?* 'leaf'
THA	*fi:ɬaq* 'leaf'
SAI(Ta)	*biLæ?* 'leaf'
KAV	*viRi?* 'leaf'
TAO	*bixax* 'leaf'
BAB	*bia* 'leaf'
IN	*biga* 'plant sp., *Homalomena*'
TBA	*bira* 'name of a bulbous plant'
FIJ	*via* '*Alocasia*'

#22
'*Ebulus formosana, Sambucus formosana* (Nakai)'[46]
PFN **NayaD*

ATA(Mx)	*laya?*
SED(Td)	*(dayac)*[47]
TSO	*xzocə*
KAN	*nalace*
RUK(Bu)	*laLaDe*
BUN(Td)	*naða?*
PAI(H)	*ljayaz*
PUY(Pn)	*layaD*
SAI(Ta)	*layar*
KAV	*layas*
AMI(Sa)	*ðayas*

#23
'*Cordia myxa* (Linnaeus), plant with small sticky fruits'
PAN **quNuNaŋ*

TSO	*xəxŋə*
KAN	*?ununaŋe*
SAR	*?uɬuɬaŋe*
RUK(Mn)	*ululaŋe*

#24
'cypress (*Taiwania cryptomerioides*)'
PHN **baNhiR*[48]

TSO	*faxri*
SAR	*vaɬiri* 'board'
RUK(Ta)	*baali*[49]
RUK(Bu)	*baali*

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44 The vowel /a/ in the Sakizaya dialect *tabuq* and the /e/ in Farangaw dialect *tefuq* are unexplained.

45 Note the semantic shift from '*Alocasia*' to 'leaf' in most of the Formosan languages. Rukai is the only Formosan language that retains the archaic meaning of '*Alocasia*'. People in Taiwan used to use *Alocasia* leaves to wrap up groceries such as fresh meat and fish.

46 The plant is used medicinally by the natives. Its root and leaves are crushed or ground and then applied to a swollen area or a wound to reduce infection.

47 The initial vowel in the form *dayac* of the Toda dialect presents a problem, and both the initial and the second vowel in the form *dayuc* in the Tongan dialect present problems if these forms are treated as cognates.

48 This cognate was originally reconstructed as PHN **baNiR* by Tsuchida (1976:140). I have revised the reconstructed form to **baNhiR*, based on the evidence in Bunun and Saisiyat.

49 As stated in Tsuchida, "All Rukai dialects [are derived] from *b-aR-aNiR".

MAL	*nunaŋ* 'a tree with fruit producing a sticky sap used as gum'	RUK(Mg)	*bali*
		RUK(To)	*baʔali*
		RUK(Mn)	*vaʔali*
		BUN(Td)	*banhil* 'cypress, board'
		PAI(H)	*valji* 'board'
		SAI(Ta)	*balihL-æh*[50] (<M)
		MAL	*banir* 'buttress-like projection from a tree-trunk'

#25
'seed (of grains)'
PHN **binʃiq*

BUN(Tb)	*binsiq*
PUY(Pn)	*biniʔ*
SAI(Ta)	*binʃiʔ*
MAL	*benih* 'seed, sowing'

#26
'thorn'
PHN **[dD]uRih*

BUN(Td)	*duli*
PAI(H)	*djui*
BAB	*to-i*
IN	*duri*
HOV	*rui*

#27
'juice'
PHN **teNuq*

KAN	*teneʔe* (<A *e/u*) 'resin, sap'
SAR	*teɬeʔ-a* (<A *e/u*) 'resin, sap'
RUK(Bu)	*tulu* (<A *u/e*) 'resin, sap'
CEB	*tunoʔ* 'milk of fruit'
SAL	*tono* 'coconut milk'

#28
'maple tree (*Liquidamar formosana* (Hance))'[51]
PFN **DaRa*

ATA(Mx)	*ragaʔ*
SED(Tn)	*daraʔ*
BUN(Td)	*dalaʔ*
THA	*łałaʔ* (<A *ł-/s-*)
SAI(Ta)	*raLaʔ*
PAZ	*daxaʔ*

#29
'*Aralia decaisneana* (Hance)'
PFN **tanaq*

ATA(Mx)	*(tanaʔ)*[53]
TSO	*tnoo*
KAN	*tanaʔe*
SAR	*taneʔe*
RUK(Bu)	*tana*
BUN(Td)	*(tanaʔ)*
PAI(H)	*tjanaq*
PUY(Pn)	*tanaʔ*

#30
'camphor laurel (*Cinnamomum camphora*)'[52]
PFN **Dakeʃ*

ATA(Mx)	*rakus*
SED(Tn)	*(cakus)*[54]
TSO	*cʔosə*
KAN	*cakese*
RUK(Bu)	*Dakese*
BUN(Td)	*dakus*
PAI(H)	*Dakus*
PUY(Pn)	*Dakes*

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50 In addition to the metathesis of **hi* > *ih*, the final segments *aeh* are unexplained.

51 The Formosan peoples grow mushrooms on the maple tree.

52 Taiwan products of camphor laurel used to be the largest in quantity in the world before 1945.

53 Both Atayal *tanaʔ* and Bunun *tanaʔ* are probably loans from the other languages. Their regular reflex for **-q* is *-q*.

54 The initial vowel in the Sediq form presents a problem, should it be treated as a cognate. The Sediq form is probably a loan from a Tsouic language (e.g. Kan *cakese*).

THA	*ta-tanaq*
SAI(Ta)	*tane?*
PAZ	*tana?*
KAV	*tani?*
AMI(Sa)	*tanaq*

THA	*ʃakiʃ* (<A *ʃ-/s-*)
SAI(Ta)	*rakeʃ*
PAZ	*dakes*
KAV	*zaqes*
AMI(Sa)	*rakes*

#31
'banana (**Musa sapientum* (Linnaeus))'
PFN **belɬbeɬ*[55]

SED(Tn)	*blebul*
TSO	*fxəfxə* 'wild banana'
KAN	*ta-venevene* 'raw banana'
SAR	*ta-velevele*
RUK(Bu)	*belebele*
BUN(Td)	*bunbun*
PAI(H)	*veljvelj*
PUY	*belbel*
THA	*fiðfið*
PAZ	*belebel*
BAB	*bilpil*
PAP	*bibul*
HOA	*bulbul*
SIR	*bulbil*

#32
'*Sonchus oleraceus* (Linnaeus), *Lactuca indica*'
PFN **samaq*

SED(Tn)	*(sama balay)*[56]
TSO	*(samaka)*[57]
KAN	*sama?e*
SAR	*(sama?e)*[58]
RUK(Bu)	*sama*
BUN(Td)	*samaq*
PAI(H)	*samaq*
PUY(Kl)	*amaR*
THA	*ʃamaq*
PAZ	*sama?*
KAV	*sami?*
AMI(Sa)	*samaq*

#33
'*Alocasia macrorrhiza*'[59]

PAN	1[60]	**biRaq*[61]
PAT	2	**bagayag*
PT	3	**cału?u*
PSP	4	**byaraR*
ATA(Pl)	2	*bagayaw*
ATA(Sk)		*bgayax*
SED(Td)	2	*brayaw*

#34
'*Lagerstroemia subcostata* (Koehne)'

PSF	1	**D[i/u]i(ɬe)Let'*
PSP	2	**?aCeR*
ATA(Mx)		*hukilu?/hawku?*[62]
SED(Tn)		*sero*

55 Batanic languages have cognate forms such as *vineveh* (see Tsuchida et al. 1987:51), which seem to be related to the Formosan forms. However, most Formosan forms indicate that they are reduplications of the same syllable, whereas the Batanic forms are not.

56 This literally means 'a real native vegetable'. The regularly derived form in Sediq should be **samaq*. The loss of *-q* indicates that *sama* is probably a loan from another Formosan language.

57 The regularly derived form in Tsou should be **sama*. The form *samaka* is probably a loan from Bunun.

58 The regular derived form in Saaroa should be **ama?e*. The unexpected initial indicates that it is a loan from Kanakanavu.

59 There are two types of *Alocasia*, *Alocasia macrorrhiza* (with big leaves) and *Alocasia cucullata* (with small leaves).

60 The same cognate set is preceded by the same number.

61 See under 'leaf' (#21).

62 Atayal distinguishes between male and female forms (see Li 1982); they are listed in that order separated by a slash in this paper.

TSO	3	*cohu*
KAN	3	*caunu*
SAR	3	*całuʔu*
RUK(To)	1	*biʔa*
BUN(Td)		*baihal*
PAI(H)		*qayŋuay*
PUY(Pn)		*siʔadeŋ*
THA		*faraðay*
SAI(Ta)	4	*byaraL*
PAZ	4	*biarax*

TSO	1	*cərsə*
KAN	1	*ne-ceere* (<A)
SAR	1	*ʔałi-seer-a* (<A)
RUK(Bu)	1	*DileLe*
RUK(Mg)	1	*Dlirsi*
RUK(To)	1	*Dileese*
RUK(Mn)	1	*ðileLe*
BUN(Td)		*naiʔatul*
PUY(Pn)	1	*(DaLines)*
THA		*qałit*
SAI(Th)	2	*ʔase:*
PAZ	2	*ʔaxex* (<A *x/s*)
KAV	1	*zines*

#35
'taro (*Colocasia esculenta*)'

PFN	1	**CaLiH*
PSP	2	**[dD]ukuł*
ATA(Mx)	1	*caiʔ*
SED(Tr)	1	*sariʔ*
TSO	1	*u-cri*
KAN		*taneke*
SAR		*ʔintavaŋ*
RUK(Bu)		*tai*
BUN(Td)		*taiʔ*
PAI(H)		*vasa*
PUY(Pn)		*buʔir*
THA	1	*łariʔ* (<A *ł/c*)
SAI(Ta)	2	*rukul*
PAZ	2	*dukul*
KAV		*sevataʔ*
AMI(Sa)	1	*taLiʔ*

#36
'*Alpinia speciosa* (Schum.)'

PNF	1	**basiyaw*
PT	2	**tapat'e*
PR	3	**sali*
PSF	4	**Reŋat'*
ATA(Mx)	1	*basiyaw*
TSO	2	*ki-tpos-a*
KAN	2	*taapa*
SAR	2	*tapae*
RUK(Bu)	3	*sali*
RUK(Mg)	3	*slee*
RUK(Mn)	3	*ʔali*
BUN(Td)		*siðuʔ*
PAI(H)	4	*ŋat*
PUY(Pn)	4	*reŋas*
THA		*raðuʔ*
SAI(Ta)		*tawbaŋ*
PAZ	1	*basyaw*
KAV		*nanel*
AMI(Sa)	4	*La-Leŋac*

#37
'sweet potato (**Ipomoea batatas*)'

PFN	1	**buŋa*
PFN	2	**tamemi*
PFN	5	**qawpiR(ʔ)*
ATA(Mx)	1	*buŋaʔ*

#38
'*Alsophila pustulosa* (H. Chr.), type of fern'

PAN	1	**giril*
PHN	2	**qaRa*
PSF	3	**t'ekiŋ*
PFN	4	**bukaw*
ATA(Ms)	1	*giil*
ATA(Sk)	4	*bukaw*
ATA(Mx)	2	*qaaʔ*
ATA(Mt)	2	*ʔagaʔ*

SED(Tn)	1	*buŋaʔ*
TSO		*fʔure*
KAN	2	*tamemi*
SAR	3	*(mairaŋe)*[63]
RUK(Bu)	4	*(urasi)*[64]
RUK(Mg)	4	*(braθi)*
RUK(Mn)	3	*(mairaŋ)*
BUN(Td)		*hutan*
PAI(Bu)	4	*vurasi*
PAI(Tb)	4	*vurati*
PUY(Pn)	1	*buŋa*
THA	1	*(bunaʔ)*[66]
SAI(Ta)	5	*ʔæwpir*
PAZ		*dadas*
KAV	5	*qawpiR*
AMI(Fa)	1	*fuŋa*
AMI(Sa)		*tubah*
TAO	5	*kaupit*[67]
BAB	2	*tamimi* (<A *i/e*)
HOA	2	*tamini* (<A *i/e*)
SIR	2	*tamamy* 'potato'
BAS	5	*hawpit*
KET	5	*kaupit*

SED(Tn)	1	*giril*
SED(Td)	1	*wiril*
TSO		*totrocu*
KAN	3	*sikiŋ* (<A *i/e*)
SAR	3	*sikiŋ* (<A *i/e*)
RUK(Bu)		*(Dikisi)*[65]
RUK(Mg)		*tlabŋisi, cikilpiŋi*
RUK(Mn)		*ðihiʔi*
BUN(Td)		*tanabas*
PAI(H)		*Dikis*
	4	*mukav* (<D *m/v*)
PUY(Pn)	3	*sekiŋ*
THA		*łaðavaʃ*
SAI(Ta)	2	*ʔæLaʔ*
KAV		*sapapayan*
AMI(F)	4	*fokaw*
SAN	2	*aha/ara* '*Ficus* spp.'
Ngdha	2	*ara* '*Ficus* spp.'
Iban	2	*araʔ* '*Ficus* spp.'
OJV	2	*hara* '*Ficus* spp.'

#39
'*Asplenium nidus*'

PT	1	**Lavaliŋ*
PSF	2	**LukuC*
PAN	2	**lukuC*
ATA(Mx)		*rauhi*
SED(Tn)		*cluhi*
TSO	1	*rxofu* (<M)
KAN	1	*lavaniŋ*
SAR	1	*lavaliŋ*
RUK(Bu)	2	*Lukucu*
RUK(To)	2	*ukucu*
RUK(Mn)	2	*Luku-Lukucu*
BUN(Td)		*kadaŋaʔ*

#40
'*Melia azedarach*'

PFN		**baŋas*
ATA(Mx)		*qasisaŋ*
TSO	1	*fŋosə*
KAN	1	*vaŋase*
SAR	1	*vaŋae*
RUK(Bu)	1	*baŋase*
RUK(Mg)	1	*bŋasi*
RUK(Mn)		*ðihiʔi*
PAI(H)	1	*vaŋas*
PUY(Pn)		*gamut*

63 Saaroa and Mantauran may have borrowed the form *mairaŋ* from each other.
64 Rukai (Budai) and Rukai (Maga) may have borrowed their forms from Paiwan.
65 The Budai form is probably a loan from Paiwan.
66 Thao may have borrowed this form from Atayal or Sediq.
67 Transcriptions of the extinct languages are not reliable.

PAI(H)	2	*rukuc*
PUY(Pn)	2	*LukuT*
THA		*tavaʃi?*
SAI(Ta)		*rauku?*
KAV		*krivakiv*
AMI(F)	2	*Lukut*

SAI	1	*baŋaʃ*
KAV	1	*vaŋas*
AMI(Fr)	1	*faŋas*

#41
'poisonous tree nettle[68] (*Laportea pterostigma* (Wedd), *Laportea subglabra* (Hayata))'

PAN	1	**ðalateŋ*
PNF	2	**baRasuq*
PRT	3	**p(aR)ag'ase*
ATA(Mx)	2	*bagasuq*
SED(Tn)		*dresiq*
TSO		*?ruu, fresi*
KAN	3	*p-ar-arase*
SAR		*(pararase)*[69]
RUK(Ta)	3	*?agase*
RUK(Mg)	3	*l-pagse*
RUK(To)	3	*pa?agase*
RUK(Mn)	3	*paha?e*
BUN(Td)		*kaladidu?*
PAI(H)		*vaDeLu*
PUY(Pn)		*LigaTen*
THA		*tulʃuq*
SAI(Ta)	1	*(kæh)Laseŋ*
PAZ	2	*baxasa?* (<A *a/u*)
KAV		*peLatiŋ*

#42
'nettle (*Urtica thunbergiana*)'

PRT **piɬi*

ATA(Sq)		*sqiy*
ATA(Mx)		*hikuil*
SED(Tn)		*srkunux*
SED(Td)		*dkiya?*
TSO	1	*pix-o*
KAN	1	*piini*
SAR	1	*i-piɬi*
RUK(Ta)	1	*?ili*
RUK(Mg)	1	*plii*
RUK(Mn)	1	*piɬi*
BUN(Td)		*saŋliða?*
PUY(Pn)		*liŋadaran*
THA		*ɬalumið*
KAV		*seleŋ*[70]
AMI(Sa)		*sedeŋ*

#43
'soapberry (*Sapindus mukorossi, Dracontomelum edule*)'[72]

PAN	1	**Daqu*
ATA(Sq)		*masa?*
KAN	1	*caa?u*

#44
'*Diplazium esculentum* (Sw.)'[71]

PNF	1	**rumaɬa*
PFN	2	**maRuŋ*
ATA(Ms)	1	*yamala?*
ATA(Mx)	1	*mala?*
SED(Tn)	1	*lmala?* (<A *l/r*)

68 Both nettle plants, *Laportea pterostigma* (Wedd) and *Urtica thunbergiana* (#42), are thorny and cause great pain if touched.

69 This is a loan from Kanakanavu, based on the evidence that the Saaroa reflex for **g'* is ø, not *s*.

70 Kavalan may have borrowed its form from Amis.

71 The new growth or tender part of the plant is used as an uncultivated vegetable.

72 The natives used it as soap in the past.

SAR	1	*caa?u*
RUK(Mg)	1	*a-Doo*
RUK(To)	1	*Daw*
BUN(Td)	1	*daqu?*
PAI(Bu)	1	*zaqu*
PUY(Pn)	1	*Da?u*
SAI(Ta)		*ra'uk*
AMI(Sa)	1	*raqu*
RUK(Bu)	2	*mauŋu*
RUK(Mg)	2	*moŋu*
RUK(To)	2	*ma?uŋu*
RUK(Mn)	2	*ma?uŋu*
PUY(Pn)		*pa?at*
THA		*daðaqas*
SAI(Th)	2	*ma'uŋ*
PAZ	1	*rumala?*
KAV		*qRutay*
AMI(Sa)		*pahku?*

#45
'*Oxalis repens* (Thunb)'[73]
PFN **pu-R-t'ek*

ATA(Mx)	*puhuk*
TSO	*p-r-əsə ?ə*
RUK(Mg)	*(lŋu-psɨkɨ)*
BUN(Tb)	*pu-l-suk*
PAI(H)	*putek*
PUY(Pn)	*(pa-r-sek)*
SAI(Ta)	*ka-pœhik*
KAV	*puseq*
AMI(Sa)	*pu-r-cek*

#46
'*Melothria heterophylla* (Cogn.)'
PFN **quŋeR*

SED(Tn)	*quŋu*
PAI(H)	*qa-quŋ*
SAI(Th)	*?æ-?œŋe:*

#47
'*Bidens pilosa* (Linnaeus)'[74]
PFN **CuRuk*

SED(Tn)	*cuguk*
BUN(Td)	*cu-culuk*

#48
'*Erechtites* (S.P.)'
PFN **sina*

ATA(Mx)	*sina?*
RUK(Bu)	*la-sia-sina*
SAI(Ta)	*ʃina?*

#49
'loquat (*Eriobotrya deflexa*)'
PFN **Ritu*

ATA(Sq)	*gitu?*
SED(Tn)	*gitu?*
TSO	*rtuu*
KAN	*riitu*
SAR	*ritu*
BUN(Th)	*litu?*
SAI(Ta)	*Litu?*
PAI(F)	*itju*

#50
'*Panicum miliaceum* (Linnaeus)'
PFN **bacaR*

ATA(Sk)	*bacax*
SED(Tn)	*basaw*
RUK(Bu)	*bcaa*[75]
SAI(Ta)	*basaL*
TAO	*basau* 'millet'

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73 This plant grows all over Taiwan. It is used to heal wounds including snakebites as well as scabies.
74 It is commonly used to cure kidney disease. It is also used to relieve a fever or reduce infection.
75 Based on Tsuchida (1977).

#51
'sorghum (*Andropogon sorghum*)'

PFN **bałaysan*

SED(Tn)	*brisan*
PUY(Lp)	*vaLaysan* (*-s-* irregular)[76]
KAV	*vLaysan*
AMI(Sa)	*baLaysan*

#52
'*Rhus semialata* (Murr.) var. *roxburghiana* (DC)'
PRP **bus*

RUK(Bu)	*boso*
PAI(H)	*vus*

#53
'*Cammetlina undulata* (BR.)'
PRT **laquDipi*

KAN	*naʔucipi-ni*
SAR	*(łaaŋəsipi)*
RUK(Bu)	*lauDipi*

#54
'*Dioscorea doryophora* (Hance)'
PRT **bakuRay*

TSO	*fʔure*
KAN	*vakurai*
SAR	*vukuri* (<A *u/a*)
RUK(Ta)	*bakuay*

#55
'*Chenopodium album* (Linnaeus)'

PSF	1	**kua[rR]*
PBT	2	**muken*
PPP	3	**duLi*
TSO	1	*vorə*
KAN	1	*kuare*
SAR	1	*kuare*
BUN(Td)	2	*mukun*
PAI(H)	3	*djuLi*
PUY(Pn)	3	*duLi*
THA	2	*mukin*
AMI(Sa)	1	*kowaL*

#56
'*Hibiscus taiwanensis* (S.Y. Hu)'
PSF **biłuaq*

TSO	*fkuo*
KAN	*vinuaʔe*
SAR	*viłua-*
RUK(Ta)	*lubu* (<M)
RUK(Mg)	*lboo* (<M)
RUK(Mn)	*luvu* (<M)
PAI(Bu)	*viljuaq* '*Oreopanax formosana*'

#57
'*Celosia argentea L.*'
PRT **kuŋiqa*

KAN	*kuŋiʔa*
SAR	*kuniʔa* (<D *n/ŋ*)
RUK(Mg)	*kuŋia*
RUK(To)	*kuŋia*
RUK(Mn)	*kuŋia*

#58
'*Litsea cubeba* (Lour.)'
PFN **maqaw*

ATA(Mx)	*maqaw*
RUK(Mn)	*amau* (<M *m-q/q-m*) 'black alder'
BUN(Td)	*maqaw*
THA	*maqaw*
SAI(Ta)	*maʔaw*

76 Both Puyuma and Kavalan may have borrowed from Amis.

PAI(H)	*maqaw* 'an alder, *Alnus japonica*'
PUY(Pn)	*ma?aw* 'an alder, *Alnus formosana*'
AMI(F)	*p-in-aqaw* 'black alder, *Alnus*'

#59
'cinnamon (*Cinnamomum macrostemon* (Hayata))'[78]
PRT **taraimu*

KAN	*taraimu*
SAR	*taraimu*
RUK(To)	*taaimu*
RUK(Mn)	*taraimu*

#60
'*Solanum incanum*'[77]
PRT **kere[DC]a*

KAN	*kereca*
SAR	*keresa talii*
RUK(Mg)	*krɨca*
RUK(Mn)	*kereca*

#61
'passionfruit (**Passiflora edulis* (Sims))'

PNF	1	**tabuka*
	2	**tukisu*[79]
ATA(Ms)	1	*tabuka?*
SED(Td)	2	*tkisu?*
KAN	2	*tukiisu*
SAR	2	*(tukiisu)*[80]
RUK(Mg)	2	*tukisu*
RUK(To)	2	*tukisu*
RUK(Mn)	2	*(tukisu)*
BUN(Td)	2	*tukisu?*
SAI(Ta)	1	*tabuka?*

#62
'*Rubus parvifolius* (Linnaeus), *Rubus taiwanianus* (Matsum), Japanese raspberry'
PFN **Liɬuk*

ATA(Mx)	*iluk*
ATA(Ms)	*ziluk*
RUK(Ta)	*Liluk*
SAI(Ta)	*Liluk*
KAV	*Rinuk*

#63
'*Gnaphalium multiceps* (Wall.)'
PFN **putuŋ*

ATA(Sq)	*putuŋ*
ATA(Sk)	*putuŋ*
BUN(Td)	*putuŋ*

#64
'miscanthus stalks, stems of cogan grass'
PHN **qaRit'am*

TSO	*resmə*
SAR	*?ariam*
BUN(Is)	*Xaslam* (<M)
SAI(Ta)	*?æLehæm*
KAV	*qiisam*

---

77 This plant is used as an herbal medicine to reduce pain and infection through ingestion. It is believed to be very useful in curing liver disease.

78 The bark of the plant is edible and has a good flavour.

79 This is a loanword from Japanese *tokeisu* 'clock plant', and it is so called because its flower looks like a clock (Tsuchida, pers.comm.).

80 Saaroa has borrowed from Kanakanavu as shown by its irregular *-s-*. Similarly Mantauran has borrowed from Tona or Maga as shown by its irregular *-s-*.

#65
'*Imperata cylindrica*'

PFN	1	**Remg'a*
PAN	2	**(we-)Riaq*
PPP	3	**rabuC*
SED(Tn)	1	*gmeya*
TSO	2	*vrio*
KAN	2	*ree?e*
SAR	2	*ereła* < **eriya*[81]
BUN(Td)	2	*liaq*
PAI(H)	3	*ravuc*
PUY(Pn)	3	*rabuT*
THA	1	*łimða?*
SAI(Ta)	1	*Lemza?*
AMI(Sa)	2	*?uLeq*

#66
'cucumber (**Cucumis sativus*)'

PNF	1	**tabuil*
PFN	2	**baRat*
PHN	3	**biNauR* (?)
ATA(Mx)	1	*tabuil*
KAN	2	*(vakate)* 'watermelon'
SAR	2	*(vakate)*
PUY(Lp)	3	*vilawur*
SAI(Ta)	1	*tabwil*
PAZ	2	*baxat*
KAV	3	*venauR* (*-e-* irregular)
AMI(Sa)	3	*biðauL*
SIR	2	*vagat*
YAM	3	*viraur* (*-r-* irregular)

#67
'ginger (**Zingiber officinale*)'

PFN	1	**Du(k)Duk*
PSF	2	**łamłam*
TSO	1	*cuc?u*
KAN	2	*namename*
SAR	1	*suusuku*
RUK(Bu)	2	*lamelame*
PAI(H)	2	*ljamljam*
PUY(Pn)	2	*lamlam*
THA	1	*suksuk*
PAZ	1	*dukuduk*

#68
'gourd, calabash (**Lagenaria* sp.)

PNF	1	**taba*
PHN	2	**tahbeH*[82]
PR	3	**tabuLulu*
ATA(Mx)	1	*taba?*
ATA(Sq)	2	*thbu?*
TSO	2	*tofə*
KAN	2	*taavu*
SAR	2	*tavu?u*
RUK(Ta)	3	*tabuLulu*
RUK(Mg)	3	*tburlu*
RUK(Mn)	3	*tabuLulu*
PAZ	1	*taba?*
FAV	2	*tabo*

#69
'pumpkin, squash (**Cucurbita moschata*)'

PNF	1	**baun*
PFN	2	**tamurak*
PRT	3	**taŋetaŋe*
PPP	4	**siak*
ATA(Ms)	1	*baun*
ATA(Pl)	2	*tmurak*
SED(Td)	2	*tmurak*
SED(Tr)	1	*baun*
TSO	4	*(pusiaxə)*[83]

#70
'*Biscofia trifoliata* (Hook)'

PRT	1	**seweR*
PKA	2	**sakuR*
SAR	1	*seere*
RUK(Bu)	1	*seve*
RUK(Ta)	1	*seve*
RUK(To)	1	*seve?e*

81 See Tsuchida 1976:201, Note 115.
82 See Tsuchida (1977).
83 Tsou may have borrowed from BUN(Is) *siah* (see Tsuchida 1977:96, Note 2).

KAN	3	*taŋetaŋe*
SAR	4	*(vusiake)*[84]
RUK(Ta)	2	*(taramu-na-ke)*[85]
RUK(Mg)	3	*tŋətŋə*
RUK(To)	3	*taŋetaŋe*
BUN(Td)		*bahat*
PAI(H)	4	*siyak*
PUY(Pn)	4	*siak*
PAZ	1	*baun*
AMI(Sa)	2	*tamurak*
FAV	2	*baun*
KAV	2	*saquR*
AMI(Sa)	2	*sakuL*

#71
'*Pueraria hirsuta* (Matsum)'
PFN **basay*

ATA(Mx)	*basay* 'type of vine'
TSO	*fsoi*
RUK(Mg)	*bsee*
BUN(Is)	*basað*

#72
'*Begonia aptera* (Hay)'
PFN **qanus*

ATA(Mx)	*qa-qnus*
BUN(Td)	*qanus*
KAV	*ʔenus* (*-e-* irregular)

#73
'*Emilia sonchifolfa*'
PR **tamuʔusu*

RUK(Bu)	*tamuusu*
RUK(Mg)	*tmoso*
RUK(To)	*tamuʔusu*
RUK(Mn)	*tamuʔu*

#74
'*Phragmites longivalvis* (Steud.)'
PFN **qaRluʔ*

ATA(Sq)	*qoluʔ*
ATA(Sk)	*q-qauluʔ*
ATA(Mx)	*qaglu?*
SED(Td)	*ʔoluʔ*
SED(Tr)	*gluʔ*
AMI(F)	*qardoʔ*

#75
'beans and peas (in general)'
PFN **qaRiDaŋ*

ATA(Mx)	*qagiraŋ*
TSO	*recŋi* (<A *i/ə*) 'pigeon peas'
KAN	*ʔaricaŋ* 'pigeon peas'
SAR	*ʔarisaŋ* 'pigeon peas'
BUN(Td)	*qalidaŋ* 'pigeon peas'
PAI(Bu)	*qaRizaŋ* 'string beans'
PAZ	*xaidaŋ* (<M)
BAB	*eran* 'certain small beans'
SIR	*agisang* 'broad beans'

#76
'pigeon peas (**Cajarus cajan* (M.))'
PNF **siŋet*

ATA(Mx)	*siŋut*
SED(Tr)	*suŋuc* (<A *u/i*)
SAI(Ta)	*ʃeŋet* (<A *e/i*)

84 Saaroa *vu-* is unexplained.
85 Rukai *-na-* is unexplained.

#77
'breadfruit (*Artocarpus communis*)'

	1	**tipoRo*
PUY(Pn)		*basilul*
AMI(F)		*qapaLo, facidoL*
YAM	1	*cipoRo*
ITB	1	*a-tipoRo*
IVA	1	*cipoho*
BKL	1	*tipoho*

#78
'Fiji longan (*Pometia pinnata*)'

	1	**cayi*
AMI(F)		*kowawi*
YAM	1	*cayi*
IVA	1	*cayi*

#79
'*Urena lobata*'
PAN **puluC*

KAN	*puucu*
PAI(H)	*puLuc*

#80
'millet (*Panicum viride*)'
PAN **beCeŋ*

SAR	*ʔe-veceŋe*
RUK(Bu)	*beceŋe*

#81
'*Dioscorea rhipogonioides* (Oliv.)'
PSF **CeŋeR*

RUK(Bu)	*ceŋe*
RUK(Mn)	*ceŋeʔe*
PAI(Bu)	*ceŋe*
PUY(Kl)	*Teŋu*

#82
'banyan (*Ficus retusa* (Linnaeus))'
PSF **(dð)aRaNap*

KAN	*(taranape)*
RUK(Bu)	*daralape*
PAI(Bu)	*djaRaljap*
PAI(Tb)	*djaraljap*

#83
'type of edible fern (*Cibotium barometz* (Smith))'
PFN **RiʔRiʔ*

ATA(Sq)	*giriʔ*
TSO	*riri*
KAN	*ta-riri*
SAR	*ta-riri*
BUN(Td)	*liʔliʔ*

APPENDIX 2: FINDERLIST OF RECONSTRUCTED PLANT NAMES

Alocasia macrorrhiza, #33
Alpinia speciosa (Schum.), #36
Alsophila pustulosa (H. Chr.), type of fern, #38
Aralia decaisneana (Hance), #29
Asplenium nidus, #39
bamboo, type of, #3
bamboo, type of, #4-1
bamboo, type of, #4-2
bamboo, type of thin (*Sinobambusa kunishii* (Nakai)), #4-3
banana (**Musa sapientum* (Linnaeus)), #31

banyan (*Ficus retusa* (Linnaeus)), #82
bark (of tree), #16
beans and peas (in general), #75
Begonia aptera (Hay), #72
Bidens pilosa (Linnaeus), #47
Biscofia trifoliata (Hook), #70
branch, bifurcation, #18
breadfruit (*Artocarpus communis*), #77
Cammetlina undulata (BR.), #53
camphor laurel (*Cinnamomum camphora*), #30
Celosia argentea L., #57
Chenopodium album (Linnaeus), #55
Cibotium barometz (Smith), type of edible fern, #83
cinnamon (*Cinnamomum macrostemon* (Hayata)), #59
Cordia myxa (Linnaeus), plant with small sticky fruits, #23
cucumber (*Cucumis sativus*), #66
cypress (*Taiwania cryptomerioides*), #24
Dioscorea doryophora (Hance), #54
Dioscorea rhipogonioides (Oliv.), #81
Diplazium esculentum (Sw.), #44
Ebulus formosana, *Sambucus formosana* (Nakai), #22
Emilia sonchifolfa, #73
Erechtites (S.P.), #48
Fiji longan (*Pometia pinnata*), #78
fish poison (*Derris elliptica* (Benth)), #6
flower, #17
fruit, #19
ginger (*Zingiber officinale*), #67
Gnaphalium multiceps (Wall.), #63
gourd, calabash (*Lagenaria* sp.), #68
Hibiscus taiwanensis (S.Y. Hu), #56
Imperata cylindrica, #65
juice, #27
Lactuca indica, #32
Lagerstroemia subcostata (Koehne), #34
leaf (*Alocasia cucullata* (Schott)), #21
Litsea cubeba (Lour.), #58
loquat (*Eriobotrya deflexa*), #49
mango (*Mangifera indica*), #84
maple tree (*Liquidamar formosana* (Hance)), #28
Melia azedarach, #40
Melothria heterophylla (Cogn.), #46
millet (*Panicum viride*), #80
miscanthus stalks, stems of cogan grass, #64
mulberry (*Morus formosensis* (Hotta)), #5
mushroom, type of (family Agaricaceae), #14
mushroom, type of white, #14-2
mushroom, type of white, #14-3

nettle (*Urtica thunbergiana*), #42
Oxalis repens (Thunb), #45
Panicum miliaceum (Linnaeus), #50
passionfruit (*Passiflora edulis* (Sims)), #61
persimmon (*Diospyros* spp.), #85
Phragmites longivalvis (Steud.), #74
pigeon peas (*Cajanus cajan* (M.)), #76
pineapple, pandanus (*Ananas comosus* (Merr)), #1
pine tree (*Pinus morrisonicola* (Hayata)), #2
poisonous tree nettle (*Laportea pterostigma* (Wedd), *Laportea subglabra* (Hayata)), #41
Pueraria hirsuta (Matsum), #71
pumpkin, squash (*Cucurbita moschata*), #69
rattan (*Daemonorops margaritae*, *Calamus margaritae*), #7
Rhus semialata (Murr.) var. *roxburghiana* (DC), #52
rice plant (*Oryza sativa*), #9
rice (husked), #10-1
rice (cooked), #10-2
Rubus parvifolius (Linnaeus), *Rubus taiwanianus* (Matsum), Japanese raspberry, #62
seed (of grains), #25
Smilax, #12
soapberry (*Sapindus mukorossi*, *Dracontomelum edule*), #43
Solanum incanum, #60
Solanum nigrum, #15
Sonchus oleraceus (Linnaeus), #32
sorghum (*Andropogon sorghum*), #51
sprout, bamboo shoot, #20
sugarcane (*Saccharum officinarum*), #8
sweet potato (*Ipomoea batatas*), #37
taro (*Colocasia esculenta*), #35
thorn, #26
tree, #11
Urena lobata, #79
vegetable, #13

Li, P.J-K. "Some plant names in Formosan languages". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*. **C-127:241-266**. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.241*

THE RAW AND THE COOKED: PROTO OCEANIC TERMS FOR FOOD PREPARATION

FRANTISEK LICHTENBERK

1. INTRODUCTION[1]

How did members of Proto Oceanic society prepare their food? What methods of cooking did they employ, and how did they process food before cooking or eating it? These are the questions that the present study is concerned with. To a considerable degree, this is a synthesis and systematisation of findings arrived at by other scholars of Austronesian and, more specifically, Oceanic languages; a good deal of what is new here consists in refining earlier reconstructions, primarily in their semantic aspects.[2]

As I see it, the main value of the linguistic evidence that will be presented here is to enable us to learn as much as possible about the ways in which speakers of Proto Oceanic prepared their food. For this reason, I have included here not only those terms whose only or central meaning had to do with food preparation but also those terms that could be used to refer to aspects of food preparation even though that was not their core meaning, as long as they are informative in the relevant respects. The emphasis here is on food preparation; I have practically nothing to say about the various kinds of food that the people may have eaten or about food and drink consumption.[3]

For this study, I have assumed the subgrouping of Oceanic given in the following figure, and the phonemic inventory for Proto Oceanic as reconstructed by Ross (1988).

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1 In revising this paper, I have profited from comments by a number of colleagues on the version presented at the symposium. I am grateful to Ann Chowning for comments on an earlier version and for data on Kove and Sengseng, to John Lynch for information on the languages of Southern Vanuatu, to Jeff Marck for the Proto Nuclear Micronesian and the Proto Trukic reconstructions, to Salome Bugenhagen for data on Mangap-Mbula, to Ruth Spriggs for data on Teop, to Malcolm Ross for the Diodio, Nalik and Tungak data, and, last but not least, to Andrew Pawley for detailed comments on a later version, for providing data on Wayan, and also for encouraging other people to share with me data on the languages they are familiar with.

2 For a recent study of aspects of Proto Oceanic culture – food preparation among them – on the basis of linguistic evidence see Chowning (1991).

3 A sizeable number of reconstructions of Proto Oceanic terms for food plants can be found in French-Wright (1983). (My thanks to Andrew Pawley for reminding me of French-Wright's work.)

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 267-288.
Pacific Linguistics, C-127, 1994.

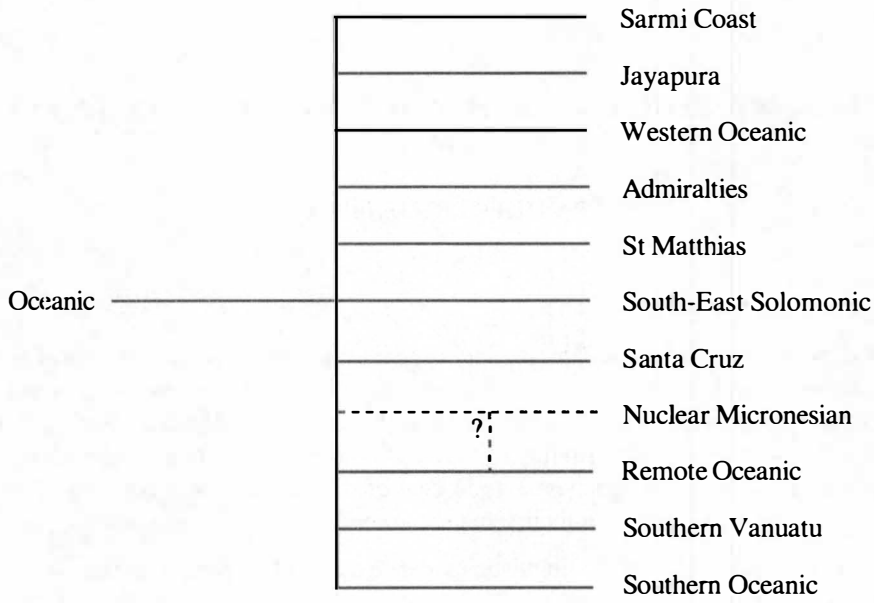

FIGURE: SUBGROUPING OF OCEANIC
(after Pawley 1982, Ross 1988 and Geraghty 1989b)

As far as the data are concerned, wherever possible I have relied on reconstructions at various levels (most often Proto Polynesian, Proto North-Central Vanuatu, Proto Micronesian, Proto Malayo-Polynesian and Proto Austronesian) posited by other scholars. Occasionally a direct, attested witness is cited even if there is a sub-Proto Oceanic protoform available; this happens when the meaning of the direct witness is more specific than that posited for the protoform.

The witnesses for a reconstruction are listed in the following way: more diagnostic witnesses are listed before less diagnostic witnesses; otherwise there is a rough geographic progression from West to East. Reconstructions at a level higher than Proto Oceanic are listed last. '?POC' indicates that the reconstruction for Proto Oceanic is problematic. A question mark before the abbreviation of a language name (e.g. ?KLA) indicates that there is some doubt about whether the form in that language is indeed a witness for the reconstruction.

The orthographic or transcription conventions are those of the sources, with one type of exception: where practicable, a backslash (\) is used to separate the part(s) of a witness form that is/are not part of the reconstruction. A backslash usually, though not necessarily, coincides with a morpheme boundary. Other kinds of indication of morpheme boundaries employed in the sources are disregarded here, unless the form is a pre-Proto Oceanic reconstruction.

Phonological indeterminacy in reconstructions is indicated by an ordinary slash (/) and/or parentheses: **w(x/y)z* signifies indeterminacy between **wxz* and **wyz*, and **x(y)z* indeterminacy between **xyz* and **xz*.

In some cases, the evidence presented for a reconstruction is all that is available. In other cases, only some of the available evidence is presented, when additional data would not contribute further details – semantic or formal – to the reconstruction.

Reconstructions of verbs are given without any affixes (such as a transitive suffix) which the verbs may have taken.

A list of the abbreviations of the language names, the primary subgroups of Oceanic the languages belong in, and the sources of the data are given in the Appendix. When there is more than one source of data for a language, the source is cited together with the data.

2. THE RAW AND THE COOKED

Proto Oceanic had terms referring to raw, uncooked food, and to food that has been cooked; in fact, there was more than one term for both categories. There was a general term used to refer to raw food (possibly excluding certain foodstuffs; see (2) below); the same term also referred to unripe foodstuff, such as fruit. The meaning of the term then was something like 'not ready to be eaten (because unripe or raw)':

(1) POC **(a)mataq* 'not ready to be eaten (because unripe or raw)': PPN **mata* 'raw, unripe', PNCV **mata* 'raw, unripe', CAN *mata* 'raw, green (not ripe), new (unused)', PMC **(a)mata* 'raw, uncooked', PTK **(a)mata* 'raw, new',[4] PON *amas* 'raw, uncooked; sober', KIR *mata* 'undercooked', *amata* 'not cooked enough, half raw; half cooked food', KWM *a\mera* 'uncooked, raw; fertile (as land)', *amri\mera* 'green, light blue; raw, uncooked' (the initial *a* in the KWM forms is most likely a later development), ANJ *mat* 'raw' (cf. *emel\mat* 'green'), MNM *amata\mata* (sg.), *am\amata* (pl.) 'raw, uncooked', GEL *mata\mata* 'wild, of domesticated animals only, shy, timid', PAN **ma-Hátaq* 'raw, unripe' (Zorc, this volume)

Proto Oceanic probably also had a term referring specifically to raw meat, fish and shellfish and/or to eating such foods:

(2) POC **qoda*, also **koda?* 'raw (meat, fish, shellfish); 'eat raw meat, fish, or shellfish': PMC **kot'a(a)* 'raw food; eat raw food', raw-food classifier, PTK **kocaa* 'raw food', WOL *goshaa* possessive classifier for raw food such as eggs, fish, meat, apples, oranges, papayas, bananas, ghosts, *goshoa\sh* 'eat raw (fish, meat, etc.)', TRK *wocha*, *wocheely* 'eat (fish, meat or uncooked fruit and vegetables)', *wochaa* 'portion (to eat) of uncooked food or cooked or uncooked meat' (Goodenough & Sugita 1980), KIR *ora* 'act of eating fish or meat in raw state; eat raw fish or meat', FIJ *koda* 'to eat raw meat', WAY *koda* 'eat raw fish or shellfish; eat fish or meat by itself', PPN **qota* 'raw', TON *'ota* 'raw, uncooked (mostly of meat, fish, shellfish, or eggs)', PEO **qonta* 'eat (seafood) raw', GEL *onda* 'eat raw, destroy a garden, of animals', KWO *oda* 'eat raw; eat a garden, of a pig', *ode\(ode)*, *ode\a* 'eat raw, chew betel without lime', PAN **qe(ŋ)taq* (Blust 1972c)

It appears that doublets need to be reconstructed, the Fijian and at least some of the Micronesian evidence pointing to initial *k*, the other evidence pointing to *q*.[5]

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4 Jeff Marck (pers.comm.) reconstructs PTK and PMC **amata* 'raw, uncooked'. On the other hand, Jackson (1984) reconstructs PTK **(a)mata* 'raw, new'. I have adopted Marck's semantic aspect of the PTK and PMC reconstructions and Jackson's formal aspect of the reconstruction for PTK and, by extension, for PMC.

5 I am grateful to Andrew Pawley for bringing this to my attention.

The term for 'cooked' was also used to mean 'ripe'; the meaning then was 'ready to be eaten (because ripe or cooked)':

(3) POC **maosak* 'ready to be eaten (because ripe or cooked)': LAK *maosa* 'cooked, done', TEO *mahaka* 'cooked', LEN *matak* 'ready to be eaten, ripe, cooked, done', PMC **m(o/a)osa* 'cooked', PTK **moota* 'cooked', MRS *mat* 'cooked', BAB *moja* 'cooked', CHE *moha* 'ripe, done, fully cooked', ARE *mata* 'ripe, of fruit', GEL *moa\moha* (also *mo\moha?*) 'cooked, of food', PMP **esak*, **ma-esak*, **ma-asak* 'cooked, ripe' (Blust 1980a)

There was another term with a meaning similar to **maosak*, but it stressed the good quality of the food:

(4) POC **(ma)noka* 'be in good condition for eating: nicely ripe, well cooked, soft': PNCV **manoka* 'cooked', MOT *manoga* 'cooked, well done', MNM *no?a* 'ripe, especially when soft; overripe; done, cooked', ?KLA *monogu* 'ripe'

It is likely that both **maosak* and **(ma)noka* contained the 'stativising' prefix **ma-* (cf. Pawley 1972, Ross 1988).

3. COOKING OF FOOD

Oliver (1989:49) says this about traditional cooking in Oceania:

> Most cooking was by broiling, by boiling (where there were clay pots, which was not everywhere), and by baking (which was done in earth-pit ovens containing heated stones).

In some places, food is boiled not over fire but by means of hot stones dropped into a wooden bowl that contains the food and some liquid. Food can also be steamed. In baking and roasting, the food is often, though not necessarily, wrapped, usually in leaves, sometimes in bark. Reconstructing terms referring to the methods of food preparation just mentioned is supported – to various degrees – by the evidence available. There are other ways of preparing food used in Oceanic societies, but I have found no evidence permitting reconstruction of terms referring to those techniques.

Oceanic languages typically have a number of terms referring to different ways of cooking food but no generic term 'to cook'. This strongly suggests that this was also the case in Proto Oceanic.

3.1 BAKING IN STONE OVEN

I use the term 'stone oven' rather than 'earth oven'. The former is more general; the latter is properly used only when the baking process takes place at least partly in the ground (Chowning 1991). Whether or not Proto Oceanic ovens involved excavation of the ground is impossible to tell from the linguistic evidence to hand.

(5) POC **qumun* 'stone oven': DIO *umun\a* 'earth oven', NAL *umun* 'earth oven', TUN *imun* 'earth oven', KWM *n\umun* (initial *n* a fossilised article), *nakwán\umun* 'earth oven' (*nakwa* 'mouth; voice; inside of, within; will, desire, wish, order, demand'), PPN **qumu* 'earth oven', PNCV *?umu* 'oven', LAK *humu* 'cook on the hearth by covering food with heated stones', *la\humu* 'hearth, earth oven, in which only hot stones, without earth are

employed' (*la* article), PMC **umwu* 'earth oven', ARO *umu* 'round stone oven with loose stones on top', KRU *umu\i* (sg.), *um* (pl.) 'cook in an earth oven'

A number of Oceanic languages have more than one term for stone ovens that normally refer to different kinds of oven. For example, Roviana has *obirae (obirai?)* for large ovens, and *oputu* for small ovens; Motu has *amu* for ovens covered with leaves and earth, and *gura* for ovens covered only with leaves; and Arosi has *umu* and *buruburu* (the nature of the distinction not specified in Fox 1978). I have found no strong evidence for reconstructing more than one term for 'stone oven' for Proto Oceanic, except possibly for the following:

(6) ?POC **biti* 'bake in stone oven; stone oven'?; or 'boil by dropping hot stones into liquid'?: CHE *biti* 'stone oven', GAO *biti* 'stone/earth oven', BGO *biti* 'native oven', GEL *mbiti* 'cook in a native oven', *mbiti\mbiti* 'pool of water heated by red hot stones for cooking', TLO *biti\(a)* 'bake or roast in a stone oven', *biti popo* 'cook in a wooden bowl heating contents by adding hot stones' (*popo* 'wooden food bowl'), TOA *bii* 'stone oven; cook in stone oven; ovenful of food', LAU *bī* 'cook in a stone oven; bambooful of cooked food', *bīa* 'ovenful of food', SAA *pii, pii\pii* 'cook with hot stones, stone-boiling', *häu pii\pii* 'cooking stones used in stone-boiling, used in ordeal' (*häu* 'rock, stone'), *pii oni* 'make coconut oil in a wooden bowl' (*oni* 'coconut cream'), ARE *pii\nia* 'steam food between hot stones', *pī\nia* 'prepare small potatoes, taro or pana together with *reke* [*reko?* 'shrub with edible leaves'] in a wooden bowl, *kakare*, with water; red hot stones are put in the bowl and the whole covered with leaves', ARO *bii, bii\ngi* 'cook with hot stones', *sina\bii, mara\bii* 'cook in native fashion, with hot stones', *ha'a\bii* 'vapour bath, remedy for certain illnesses; to dye, soak in dye and boil, stew' (*ha'a-* causative prefix), KWO *bii\bii* 'shrubs (*Evodia* sp.), used as medicine, *bii\bii (fana daafilai)* 'leaves bundled and steamed in bamboo, medicinally, put on pained place as poultice' (*fana* purpose, *daafia* 'smoke onto, smoke (tr.)')

Although the witnesses for the reconstruction come from two primary subgroups of Oceanic, the languages are geographically close to each other (Santa Ysabel, Nggela, Malaita, San Cristobal), and there is a strong possibility of borrowing. Secondly, even the semantic aspect of the reconstruction is not secure: the term may have referred to stone ovens and baking in ovens, or to boiling by means of hot stones. Given the fact that I have found no evidence for reconstructing another term for stone-boiling, it is perhaps more likely that the proto-term – whether at the Proto Oceanic or a lower level – referred to stone-boiling rather than to stone ovens or baking.

Proto Oceanic may have had two terms that could be used to refer to baking in a stone oven: (7) and (8).

(7) POC **papi* 'bake in stone oven'; possibly also **papia* 'firewood': ARO *hahi* 'cook in a native oven, *umu*; food cooked so', KII *vavi* 'steam cook with hot stones', FIJ *vavi* 'bake food in a native oven (*lovo*)', PMC **fafi(a)* 'firewood', PPN **fafie* 'firewood', LEN *av* 'bake, cook in an earth-oven', *na\va\an* 'baking' (*na* fossilised article, *-an* nominaliser)

If **papia* is reconstructable for Proto Oceanic, the final *a* may be a nominaliser; see also (18) below.

Baking in a stone oven is a complex process, and present-day languages usually have a number of terms referring to various aspects of the process and to the implements used. At least the following terms having to do with baking are also reconstructable:

(8) POC **taqon* 'close a stone oven (when earth or the last layer of leaves has been placed on top); bake in stone oven'; the basic meaning being 'press down, weigh down with a weight, cover over with the cover weighed down; follow closely' (see discussion below): PPN **taqo* 'cook in earth oven', **taqo\mi*[6] 'press down, weigh down with a weight', TIK *tao* 'cover over, press down (e.g. cover oven); bake food (from technique of covering earth oven with leaf pads in cooking)' (Firth 1985), SAM *tao* 'cook (in a stone oven), bake; (of the oven) to cover; put weight on, press down', *ta\tao* 'follow in the tracks of, trail' (Milner 1966), PNCV **ta?on\i* 'to cook', PMC **taon\u* 'press, bury', GEL *tao* 'be face down, flat on face; be on oven, of leaves in cooking', *mbiti tao* 'food long in oven' (= *mbiti kombi* (*kombi* 'put food in native oven'; for *mbiti* see (6) above)), *tao* 'follow', *taon\i* 'follow, copy', TEO *tao* 'oven; bake', MAB *to* 'cook with hot stones', KOV *ta\tao* 'cook in stone oven' (Chowning 1991), WAY *ton\i* 'be pressed, compressed, pushed down by hand or other force' (also as a transitive verb)

Biggs (n.d.) reconstructs two homonyms for Proto Polynesian (see above and footnote 6). However, the hypothesis preferred here is that in Proto Oceanic there was only one item, **taqon*, whose basic meaning was something like 'press down, weigh down with a weight, cover over with the cover weighed down; follow closely'. This verb could be used to refer to the process of closing a stone oven (the covering leaves being weighed down with stones, sticks, earth, etc.); the direct object was a noun phrase referring to the oven. By metonymic extension, the verb could also be used to refer to cooking food in an oven (see Firth's comment on the Tikopia form in (8) above); in this case the direct object was most likely a noun phrase referring to the food.

There appear to be two problems with this hypothesis, but neither is without an answer. Firstly, Proto Polynesian exhibits a phonological irregularity: *m* instead of the expected *n*. Notice, however, that one would be faced with an *n-m* irregularity even if one posited two separate etyma rather than just one; compare the Proto Nuclear Micronesian and Proto Polynesian forms above. Furthermore, among the witnesses for reconstructing PPN **taqo* (here amended to **taqomi*) 'press down, weigh down with a weight' Biggs (n.d.) lists Samoan *taomi* 'follow closely, press with questions', but the Nggela cognate is *taoni* 'follow, copy'. The second apparent problem is the fact that in Samoan the perfective form of *tao* 'cook (in a stone oven), bake' is *taoina*, but the perfective form of *tao* '(of oven) cover; put weight on, press down' is *taomia*. However, a similar pair of perfective forms is found with *tatao* 'follow in the tracks of, trail': *tataoina* and *taomia*, the latter having the meaning 'follow closely, follow immediately; press with questions, insist on an answer'. Finally note that an irregular consonant correspondence – of a different sort – is also found in Arosi: *ao* 'come one after another, as birds settling on a tree', *aohi* (tr.) 'come to, cluster on (e.g. birds settling one by one on a tree)'.

In summary, there appear to be no serious problems with the hypothesis that Proto Oceanic had the form **taqon* 'press down, weigh down with a weight, cover over with the cover weighed down; follow closely', which could be used to refer to the process of closing a stone oven and also to baking in an oven.

(9) POC **pukes* 'uncover, open (stone oven; probably other things as well)': PNCV **vukes\i* 'open, uncover', PPN **fuke* 'open up (esp. an earth oven), uncover', ULW

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6 Biggs (n.d. – 1992 POLLEX printout used in this paper) reconstructs **taqo* 'press down, weigh down with a weight', but evidence from within Polynesian points to **taqomi*.

huke\huke (intr.) 'open oven, used in children's game', *hu'es\i* 'open a native oven; turn the pages of a book', PAN **bu(ŋ)kas* 'expose, unveil' (Blust 1983-84a)

(10) POC **uru* 'take food and/or hot stones out of stone oven or fire'; more generally 'collect, gather': PPN **uru* 'arrange hot stones on bed of earth-oven', EAS *úru* 'take out the stones that have been heated in the *úmu* [earth oven]', TOL *ur* 'take food out of, or off the fire' (Wright 1964), PMC **urū* 'pull, tug, drag, haul', MOT *ur, uru* 'cook in hot ashes', SAA *uru, uru\uru* 'gather up in the hand, collect, wipe, take *kara* mash from *nime i kara*' (*kara* 'scrape, grate', *nime* 'wooden food bowl', *i* genitive), GEL *uru\vu* 'assemble', ?GIT *t\ir* 'remove from stone oven', ?KOV *uru* 'burn food, be burnt (of food)' (Chowning, pers.comm.), PAN **uruŋ* 'collect, gather' (Blust 1972c)

(11) POC **kapis* 'tongs; hold st. between two objects, wedge st. (e.g. use tongs, handle st. with tongs)': TEO *ka\kapih\i* 'tongs', ZAB *kapis\i* '(to) wedge', *kapais\i mahai taremehana heke* 'eat with chopsticks' (*mahai* 'eat', *taremehana* 'a relative', *heke* 'tree, stick'), ROV *kapih\ia* 'press or squeeze, as an article between two boards, keep in place; the thing used for this purpose', most likely also *ne\pihi, no\pihi* 'tongs, usually a bent or folded piece of cane', ARO *'ahi* 'bring together; take up with tongs; fasten', *'ahis\i* 'take up with tongs; fasten two sticks together', East ARO *'a\'ahi, ka\kahi* 'tongs', TLO *kapi* 'bamboo tongs used to take hot stones out of the oven', *kapits\ia* 'catch between two objects', GEL *u\gavi* 'take with tongs or pincers; tongs, pincers', *avi* 'pick up a stone from the oven with tongs, push away stones of oven', but also *kapi* 'narrow, enclosed; hold st. tight, between arms and side; clench; catch in a trap', *kapis\i* 'enclose in a narrow place, wedge in, clench tight', PPT **kapi* 'tongs', YAB *kapi\ŋ* 'clamp made of two pieces of wood tied together (used in sago washing); scissors, pincers, tweezers, clamps used for pressing st. together; crypt. for *gandon* ('tweezers (of bamboo)'); clamp, squeeze, carry (hold) st. under the arm; cut st. with scissors', *kapi\ŋ* mo 'take a roasted taro with bamboo tongs' (*mo* 'taro'), SEN *e\kap* 'tongs' (Chowning 1985)

Ross (1988) tentatively reconstructs **kapi-ŋ* 'tongs' for Proto Huon Gulf (*-ŋ* reflecting the POC nominaliser **ŋa*) and says that it comes from POC **kabit* 'hold (in hand)', the *b* having been devoiced by assimilation to the final *t*. (The suggestion that the terms for 'tongs' and 'hold' are related had also been made by Capell (1973 [1941]).) However, there are two problems with this hypothesis. Firstly, a term for 'tongs (etc.)' is reconstructable for Proto Oceanic, and it has a *p*, not a *b*. And secondly, there is a difference in the final consonants, *s* versus *t*. Although the possibility that the two terms are somehow ultimately related cannot be excluded, they were distinct from each other already in POC times: **kapis* and **kabit*.

3.2 ROASTING

I use the term 'roast' to refer to cooking food on hot embers or directly in the fire, although the sources of the data use the terms 'roast', 'grill' and 'broil' (in addition to more general terms, such as 'cook in fire'). Even though more than one term for roasting may be reconstructable for Proto Oceanic, the differences in the glosses for the witnesses most likely reflect differences in the English backgrounds of the authors rather than differences in cooking methods, and I have treated these glosses as mutually equivalent.

(12) POC **tunu* 'roast on embers or in fire', also 'burn (tr.)', and 'make decorative cicatrices by burning the skin': PPN **tunu* 'cook on open fire, roast, grill', PNCV **tunu* 'roast', NMI *cini* 'burn, grill in fire', MOT *tin* 'roast on or over embers', Veverau dialect *tun*

'roast on embers, toast', TOL *tun* (tr.) 'burn, (as a house), cook (of food), scald, iron (of clothes)', *tun\tuna* 'to grill' (Wright 1964), KIR *tin\tin* 'grill or roast on open fire', SAA *u\unu*, *uunu\unu* 'burn in the fire, roast flesh on the embers; raise cicatrices on the body by burning', BGO *tunu* 'a mark, blot, cicatrice caused by burning', WAY *tunu* '(of cooked food) warmed, reheated', *tunu\i* (tr.), TLO *tunu\a* '(to) light (lamp or fire); burn the skin to make a raised scar tissue design', CHE *tunu* 'burn with fire', PET *tun\tun* 'the small tribal marks put on the arms of the natives using the hot end of a very small stick; make such marks', LAK *e\tulu\lu* 'hot taro', *tulu\lu* 'burn (of a burn), be burned', MTU *tunu\a* 'bake pottery'; PAN **CuNuH* 'roast in/over fire' (Zorc, this volume)

Ross (1988) gives the meaning of POC (and PAN) **tunu* as 'bake, burn', but it is unlikely that the POC term referred to baking food, although it may have referred to baking pottery (see Motu *tunua* above).

(13) POC **mwaRi* 'to roast'. Geraghty (1990) reconstructs what he calls 'Proto Eastern Oceanic' **mwaRi* 'roasted' on the basis of the following data: PSS **mali*,[7] MOT *mwa\mwari\sa* 'smarting; to smart; biting in taste', KIR *mwai* 'cooked, well done',[8] and EFJ *gwai* 'browned by exposure to sun'. However, the South-East Solomonic reflexes are irregular; the expected PSS form is ***mwali*. In addition to the data considered by Geraghty, there is also: MNM *moa\moari* 'cook in fire, roast, burn, singe', GED *mazi* 'roast, cauterise, toast, bake, parch, sear, burn, incinerate, set fire to, ignite, light (a cigar)'.

When food was roasted, instead of simply being placed in the fire, it may have been skewered. The terms referring to skewering and skewers were also used to refer to testing food by pricking to see whether it was done.

(14) POC **sukit* 'pierce, prick (among other things, to check whether food (especially tubers) is done), to skewer; to poke'; **susuk* 'anything used to pierce, prick; a skewer': PPN **suki* 'pierce, spit; stabbing pain', GIT *zuzu* 'sharpened stick used like cooking fork', SEN *suk* 'thrust into', *e\suk* 'digging stick' (Chowning 1985), GEL *suki* 'to prick; lance a boil; vaccinate, inject, bleed; sew; plug a small hole; pole a canoe', *susu\ihu* 'hole in septum in nose; nose stick; strengthening sticks through thatch of house ridge' (*ihu* 'nose'), ARO *suki* 'poke out, poke through', *su\suki* 'poke fruit off a tree with a pole', FIJ *cuki*, *cukit\a* 'to root, dig up or loosen the ground with a stick, dig the surface only', SAA *su\su*, *su\su\su* 'to prick, pierce, impale, stake, sew', *su\su\i* 'to prick, set up, fix firmly, get upright in the ground', TOL *uk*, *uk\uk* 'to thread, as beads, *tabu* [native shell money], etc.', (Wright 1964), PAN **suŋkit* 'pierce' (Blust 1972c), PMP **cukcuk*, **suksuk* 'skewer' (Blust 1983-84a)

3.3 BOILING, STEAMING

Two items are reconstructable for Proto Oceanic with the meaning 'to boil'. The problem is that the sources of data do not usually distinguish between boiling and steaming, both of which are practised in Oceania, 'boil' being the usual gloss. The difference between boiling and steaming lies in the amount of liquid used. For boiling, the food is (more or less) entirely covered with the liquid; for steaming, only a small amount of liquid is used. If Proto Oceanic did have a lexical distinction between the two processes, there is some evidence, albeit weak,

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7 See, for example, ARE *mari'a* 'cooked, roasted' and ULW *mali* 'be roasted', *mali'a* (adj.) 'cooked, roasted'.

8 However, in Sabatier (1971) one finds *mai* 'cooked, well-done, well-cooked'.

that the term for 'to boil' was **nasu* and that the one for 'to steam' was **napu*. It is also conceivable that of the two terms **nasu* was unmarked and could be used to refer to both types of process.

(15) POC **nasu* 'to boil (including steaming?)': MTU *nadu\a* 'cook by boiling', *na\nadu* 'cook (general term)', LAL *nadu* 'feast; cook', GIT *na\nazu* 'cook in hot water', TEO *nahu* 'cook; pot', PET *nös* 'cook by boiling', PAN **nasuk* or **Nasu* 'cook by boiling' (Blust 1980a), **na+suk*, **Nasu* 'cook by boiling' (Zorc, this volume)

(16) POC **napu* 'to steam?; to boil?': FIJ *navu* 'straighten a stick, as for a spear, by heating it in the fire and then putting a heavy stone on it; cook in steam', KRU *nou\i* (sg.), *nurru* (du.), *nau* (pl.) 'cook, boil in a saucepan', GED *nai* 'cook, boil', MAB *noi* 'boil in pot'

(17) POC **kuron* 'clay pot' (Ross 1988; see also Pawley & Green 1973)

When boiling or steaming food, the container may be covered with a lid, such as a coconut shell (Chowning, pers.comm.), or its mouth may be closed with a plug, usually made of leaves.

(18) POC **tutup*, **tup* 'to cover', **tutupa*, **tupa* 'a cover, lid': LNU *tutuh*, *tutuha* '(a) cover, lid, leaf used as a lid', FIJ *tuv\i* 'to cover, conceal', *i tuvi* 'leaves for covering food', *tutuv\i* 'wrap oneself up', TOL *tuba* 'to cover, as a pot, a canoe, etc.', *tuba\tuba* 'lid or cover' (Wright 1964), ZAB *tutu\ngana* 'lid of pot, cap of bottle', GED *tutu\muni* 'to cover (with sand, dirt, the hand), fill in (a hole), shovel, shut, close (a hole, mouth), shut (up)', PAN **tutub*, **tutup* 'to cover' (Blust 1986)

The Tolai form and some of the Fijian forms suggest POC **tup* besides **tutup*, and **tupa* besides **tutupa*. This kind of haplology in Oceanic has been discussed by Blust (1977b), who attributes it to a 'family-wide drift to disyllabism' (1977b:32). Blust leaves open the question of whether the haplology existed already in Proto Oceanic or whether it developed independently in various languages in post-Proto Oceanic times. Since in some cases (see (51) below) only a haplologised form is reconstructable on the basis of the Oceanic evidence, I have opted for positing both full and haplologised forms for Proto Oceanic where both types of witness are found. This decision is motivated by a desire for consistency, not by a conviction that the haplologised forms existed in Proto Oceanic.

(19) POC **jojoŋ* 'to plug, caulk, bung; a plug, bung': GIT *zozon* 'to plug, to stopper', GED *dod* 'a cork, stopper made out of leaves rolled together to stop the hole in the coconut shell water container', GEL *ndondong\aga*, *ndondong\ana* 'fitted tight, as a cork', FIJ *sog\ota* 'shut up, close, cork up', *i sog\o* 'shutter, door, lid', MNM *rozoŋ* 'plug a hole in st.; plug st. (e.g. a bottle)', *rozoŋ\a* 'a plug, anything used as a plug', PAN **seŋseŋ*, **suŋsuŋ* 'cork, stopper, plug' (Blust 1986), **seŋ+seŋ* 'cork, stopper, plug' (Zorc, this volume)

Although the Fijian forms exhibit loss of the first syllable, this is most likely due to a process other than the haplology discussed by Blust (see discussion of (18) above).

Note that if cooking pots were to be plugged with leaves, one would expect such pots to have relatively narrow mouths.

3.4 WARMING UP, REHEATING FOOD

(20) POC **raraŋ*, **raŋ* 'warm up, reheat (esp. food); warm oneself by fire': MNM *raraŋ* 'warm up (food that has become cold), warm up again', FIJ *rara*, *ragla* 'warm oneself at a fire; of pain, smart slightly', *vaka\ragla* 'to warm food again by placing it near a fire; sear up banana leaves around food' (*vaka-* causative prefix), PMC **rang\i* 'warm oneself, as by fire', PPN **lala* 'heat over fire, grill, smoke', but also **rara* 'toast, grill, heat over fire', PNCV **ragli*, **ragla* 'roast on coals', GEL *rarangla* 'heat; scorching hot; bright, glorious; glory', *rara\ngasi* 'dry up by heat', *rara\ngasia* 'dried up, baked by sun', SAA *rara*, *raa\rara* 'be in the sunlight, be hot, pungent', *rara\hi* 'to heat in the fire', *rarang\i* 'affect a person magically', PAN **d2a(ŋ)+d2aŋ* 'heat s.th. or warm oneself by fire' (Zorc, this volume)

3.5 SINGEING IN PREPARATION FOR COOKING

(21) POC **sunu* 'singe': PPN **sunu* 'singe', **ma\sunu* 'singed, cooked, burnt', LNU *sun* 'singe', LAK *sulu\lu*, *silu\lu*, *sili\lu* 'singe' (*sululu* said to be by confusion with *sililu*), KLA *sulu*, *sulu\sulu* 'to cook'

3.6 WRAPPING FOOD FOR COOKING

At least two terms are reconstructable for wrapping food for cooking (baking or roasting), and it may be that they referred to different ways of wrapping food. Firth (1957) gives four terms for different ways of wrapping food in Tikopia, one of which appears in (23).

(22) POC **apu* 'wrap food (in a certain way?) for cooking', more generally 'to wrap, pack': LAK *avu* 'wrap up, bandage', *avu\kalebu\a* 'wrap up fish for cooking so that pieces of fish are separated by a layer of leaves' (*e-kalebu* 'fish sp.: leatherjacket'), SAA *ähu*, *ähu\i* 'wrap (up)', *ähu lalemo* 'wrap up yam pudding without coconut cream' (*lalemo* 'without coconut cream'), MNM *apu* 'roast in fire', FIJ *cavu* 'adorned, highly ornamented'. In some Cristobal-Malaitan languages there is an unexplained initial glottal stop: TOA *'afu* 'wrap st. (e.g. wrap fish (not pork) in a leaf for cooking)', KWO *'afu* 'parcel, bundle; full(y), complete', *'afu\a* 'wrap, bundle up', *'afu\lo'u* 'a whole fish cooked in a single parcel' (*lo'umia* 'fold up'), LAU *'afu* 'wrap up; make a cigarette', ARE *'ahu* 'wrap, cover', ARO *ahu* 'wrap up', *'in\ahu*, *'in\ahu\si* (tr.), also BRO *gin\ahu* 'wrap up in leaves',[9] East ARO *ahu\nu* 'broil on the embers in a leaf'. (It is conceivable that the presence of the glottal stop in the reflexes of (22) is due to contamination from the reflex of (23) in Proto Cristobal-Malaitan.)

(23) POC **kopu* 'wrap food (in a certain way?) for cooking', more generally: 'to bundle, wrap': PPN **kofu* 'wrap up; covering; parcel', TIK *kofu* 'a way of wrapping food in leaves: leaf drawn together at the top and tied with a separate strip of hibiscus or the like' (Firth 1957), '(to) package in leaf or (modern) cloth, tied at top; leaf/cloth package usually containing soft food' (Firth 1985), SAM *'ofu* classifying particle used with numerals in reference to items of food wrapped in leaves when cooked...excluding small fish; 'garment, dress, clothes; food done up in small bundle of leaves (for cooking in a stone oven or for convenience); wear, be dressed' (Milner 1966), FIJ *kovu* 'tie up *vakalolo* [k.o. pudding] or fish in banana leaves', WAY *kovu* 'covered, wrapped', *kovu\ti* 'cover or wrap s.th.', LAK

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9 The extra *in* in the ARO and the BRO forms probably continues the POC infix **-in-*.

la\kobu 'cigarette; leaves wrapped around pork to be cooked with it' (*la* article), ARO *'ohu* 'cook with hot stones; boil; put together, rake together, as a fire'

3.7 POUNDING FOOD

Pounded foods are widespread in Oceania (Yen 1975). In Pidgin and in English, they are referred to as 'puddings' (although not all puddings require pounding). The usual main ingredient is tubers (taro, yam), cooked and pounded, mashed into a paste together with other ingredients, such as coconut cream or nuts, and then usually recooked.

(24) POC **tutuk*, **tuk* 'pound, mash by pounding, hammer, crack by hammering': MNM *tutu?* 'mash, crush', TLO *tutuk\u* 'pound with a stick-like object to soften, mash or crush (food, nuts, lime)', PNCV **tuk\i*, *tutuk\i* 'pound', GEL *tutu* 'pound, crush, as yams in *tambili* mortar; pudding made from pounded yams, etc.', *tutuk\ata* 'to ram', *tutuk\u* 'pierce, stab, holding a weapon', PMC **tuk\u* 'pound or mash with pestle', FIJ *tuk\i*, *tuk\ia* 'strike at, knock at, hammer, pinch', *tuk\ivatu* 'variety of pudding of roasted breadfruit beaten quickly under water with a stone' (*vatu* 'stone, rock'), TOL *tut* 'to hammer, strike with a stone, pound up', *tu\tutuk* 'a hammer' (Wright 1964), BAB *tuk\i* 'crack nuts with a stone and remove shells; kick (with foot), punch (with hand)', ROV *tutu* 'large stick used for mixing native puddings; small pestle used for mixing *heta* [betel nut], etc., in a *kodere* [mortar for betel-nut chewing]', CHE *tutu* 'hit, pound, hammer, as in pounding nuts', *tūg\e* 'to hammer, pound, esp. pound food in a bowl with a mallet', *thūg\e* 'lump of mashed food made by pounding ingredients in a bowl', GIT *tutu* 'pound, beat, knock', KRU *tit* (sg.), *tut* (pl.) 'crush (strike a blow with a hammer or like instrument and resulting in crushing someone or something)', MAB *tut* 'pound, hit', LNU *tuk\uwɛy* 'break open (e.g. coconut)', PAN **tuqtuq* 'to hammer, pound, crush' (Blust 1986)

(25) ?POC **kumete* 'large wooden bowl (used as a mortar in pounding, mashing food and/or in stone-boiling?)': MOT *wumeto* 'wooden bowl used for stone-boiling', FIJ *kumete* 'wooden bowl', PPN **kumete* 'wooden bowl', KAP *gumade* 'large wooden bowl used for pounding food', KIR *kumete* 'kind of wooden mortar trough; hollow, empty, concave; thin, ravenous (hungry)' (Harrison (1989) identifies KIR *kumete* as a Polynesian loanword.)[10]

4. PRESERVATION OF FOOD

There are two main methods used in Oceania to preserve food for future use (Yen 1975). One is drying, either in the sun or above fire (the latter may involve smoking the food); the other is fermentation. Ways of drying certain foods are found throughout Oceania, and a term for drying is reconstructable for Proto Oceanic:

(26) POC **tapa* 'to dry food by heat in order to preserve it; smoke food': ROV *tava* 'cook or dry by smoking or heating, as fish, copra, etc.', ZAB *tava koilo* 'make copra in a hot air dryer' (*koilo* 'coconut'), PAN **(t/T)apa* 'to smoke, dry by smoking' (Blust 1972a), **CapaH* 'smoke fish or jerk meat' (Zorc, this volume)

Fermentation of food is geographically much more restricted. Yen (1975) says that at present this practice is almost confined to Polynesia and Micronesia and that in Melanesia it appears to be practised only in Santa Cruz. Yen ascribes the presence of fermentation in

10 I am grateful to Ross Clark for bringing Harrison's study to my attention.

Santa Cruz to Polynesian influence. However, David Walsh has informed me that fermentation is practised also in some areas in Vanuatu; see also the Namakir form *mada* below. Terms having to do with fermentation have been reconstructed for Proto Nuclear Micronesian and for Proto Polynesian. Although the PMC and the PPN forms continue a POC term, the POC term most likely did not refer to fermentation or to fermented foods. Rather, its meaning was 'ripe', perhaps 'very ripe, overripe', and it was applied specifically to breadfruit and bananas, both of which become soft and mushy when overripe. Breadfruit and bananas are also the two foodstuffs which today are most commonly preserved by fermentation (Yen 1975).

(27) POC **madrar* 'ripe, overripe (of breadfruit and bananas)': PMC **mat'a* 'ripe, overripe, fermented', WOL *mmash* '(to be) ripe (e.g. banana), fermented, soft, wet', TRK *mach* '(be) very ripe, rotten; stink', *a\mmach* 'dish made from *meyichéén* or *neeyátin* varieties of breadfruit' (Goodenough & Sugita 1980), 'pudding of baked very ripe *mei chön* breadfruit, sometimes with coconut cream' (Elbert 1947), MRS *mmed* 'very ripe, overripe, of breadfruit only', *mei\med* 'overripe, of breadfruit with seeds; overripe breadfruit', TOL *mădăr* 'ripe, overripe' (Lanyon-Orgill 1960), GEL *manda* 'ripe', *mandar\i* overripe, as a banana', ARO *mada* 'be ripe', *madar\i* 'grow ripe from', *ha'a\mada* 'ripen by hanging up in house, as bananas' (*ha'a-* causative prefix), NAM *mada* 'preserved breadfruit, manioc, etc.', FIJ *madra\i* 'Fijian bread, buried in the ground for months, in a hole called *davuke'*, PPN **mara* 'food fermented to preserve or enhance taste', MFA *mara* 'breadfruit, taro or banana preserved by fermenting in a pit', ?GRC *madə* 'cooked, ripe', PAN **mada* '(banana) ripe' (Ross 1988)

Ross (1988) posits POC **madra* (and PAN **mada*) '(banana) ripe', but the evidence suggests that the POC term was applicable to breadfruit as well.

One of the participants at the symposium pointed out that food fermentation is practised primarily in those areas where sago is not available as a staple. Sago can be stored in a processed or unprocessed state for lengthy periods of time (Ruddle et al. 1978). Assuming that sago was available as a foodstuff in Proto Oceanic times (Dutton, this volume), the nearly complementary distribution of sago as a staple and fermented foodstuff suggests that the presence of fermentation in Micronesian and in Polynesia is due to independent developments.

5. OTHER ASPECTS OF FOOD PREPARATION

Preparation of food typically involves not just the cooking or preservation itself, but also, depending on the kind of food, a variety of ancillary processes, such as husking, grating, scraping, peeling, etc.

5.1 HUSKING, BREAKING, CRACKING

(28) POC **kojom* 'to husk (coconuts); husking stick; digging stick' : MNM *ʔozom* 'to husk (coconuts)', LNU *kučum* 'short pointed stake stuck in the ground, used for husking coconuts', PNCV **kosom\i* 'husk coconut', MOT *goso* (Maligo dialect *gosom\a*) 'to job a spike, thence to husk a coconut with a pointed stick', *i\goso* 'the stick used to husk with', ANJ *a\ɣem* 'to husk (coconuts)', PMC **koso* 'husk with a stick', PPN **koho* 'digging stick', TOK *koho* 'coconut husking stake', HAW *ʻō* 'any piercing instrument, fork, pin,

skewer, harpoon, sharp-pointed stick, pitchfork, fishing spear, coconut husker; sharp darting body pain; pierce, vaccinate, stab, etc.', KWO *'oto* 'hit and perforate; put stick in ground, tether pig to it; jab, stick, throw (out)', *'otom\ia* 'to spear; call up kinsmen for a fight'

Ross (1988) gives the meaning of **kojom* as 'pierce, husk', but the (primary) verbal meaning was most likely 'to husk'.

(29) POC **joka* 'pierce, husk (coconuts)': GEL *hoka* 'to bore', FIJ *coka* 'pierce, usually with a spear', PPN **hoka* 'husk coconuts on a pointed stake', also **soka* 'pierce', TOL *oka, oko* 'to poke, probe', *oka\ng* 'to pick (as teeth)' (Wright 1964), LEN *ɨti\k* 'stab, spear, pierce, stick into'[11]

(30) POC **potak* 'crack st. open, split st. open (such as nuts, coconuts)': MNM *ota?* 'crack st. open (e.g. coconuts, canarium nuts)', ANJ *a\htak\wai* 'split', MOT *wota* 'knock, break by knocking', GEL *voti* 'break open (as a coconut), split, split up', SAA *hoa* 'make an incision in; remove and separate; withdraw, leave', PMP **beTa(k)* 'split, cleave' (Dempwolff 1938)

(31) POC **poro* 'break st., smash st. (of brittle things; possibly also applied to nuts)': FIJ *voro, voro\ta, voro\ka* 'break, smash (of brittle things)', MAB *po\pooro* 'crush (by hand)', SAA *horo, horo\i* (intr.), *horo\i* (tr.) 'beat, strike, kill; win (in children's games)'

5.2 GRATING, SCRAPING

(32) POC **asa* 'grate (e.g. tubers), grind; sharpen by grating, grinding'; **i asa* 'grater; anything used to grate, grind': TEO *aha* 'grate (e.g. tapioca); scrub (e.g. floor)', *iaha* 'grater', FIJ *yaca, yacā* 'grate, grind, file; rub eyes with *cika* [inflammation of the eye, conjunctivitis]', *i yaca* 'grater, grindstone', ROV *asa\ia* 'grind, as an axe, if very blunt; grate, like *luzu* [sweet yam or potato], taro, etc.', VNU *asa* 'grate', *in\asa umari* 'pudding made from grated cassava' (*in-* nominaliser, *umari* 'cassava'), CHE *jaha*, also *zaha* 'sharpen (as a knife or axe)'; *jaha* also 'grate food, such as tapioca or sweet potato', MNM *ara* 'grate, sharpen, rub', SAA *sata\a'i* 'chafe, rub', LNU *as* 'scratch', PMC **asa* sharpen, put an edge on s.th.'

(33) POC **karis* 'scrape (tubers, coconuts)': TLO *karis\ia (kari\kari)* 'peel with a knife, shell, etc.', also *gari\a* 'scrape; chafe, rub', ARO *kari\kari* 'scrape off small roots with *waro* shell', GEL *kari* 'scrape off (as dirt, blood from a cut), scrape out white of coconut, scale a fish', *karis\i* 'peel off skin of stem of plant or stick; circumcise', WAY *i\kari* 'grater', FIJ *kari, kari\a* 'scrape (chiefly of coconut)', KOV *karis\i* 'scrape one's skin' (Chowning pers.comm.), PMC **kari* 'scratch'

(34) POC **karas* 'scrape (skin of tubers)': PNS **karas\i* 'peel (sweet potato, etc.)', CHE *ka\kras\i* 'scrape off potato or taro skin, using a shell', ARO *karas\i* 'scrape, bruise, take off skin', KWO *gala\a* 'peel skin off (a vegetable, etc.)', *galas\ia* 'peel a raw vegetable', TOA *garas\i* 'scrape taro, sweet potato, etc. to remove the dirt after pulling it out of the ground', SAA *kara* 'scrape, grate', *kara uhi* 'grate yams with a cockle shell' (*uhi* 'yam')

(35) POC **ko(r/R)i(s)* 'scrape (esp. coconuts), grate (esp. coconuts)': TOA *kori* 'scrape (e.g. coconuts)', TLO *kori\(a)* 'scrape or grate coconut', MNM *?ori\ŋ* 'scrape (coconuts)',

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[11] According to John Lynch (pers.comm.), LEN *ɨtik* is a reflex of POC **joka*.

ʔori\ʔori 'pearl shell, traditionally used to scrape coconuts; coconut grater/scraper', KRU *qri* (sg.), *quor* (pl.) 'scrape a coconut', *qoqri* 'coconut scraper', GEL *goli* 'scrape coconut with a *tue*, fresh water shell *Batissa*, also *gori* 'shave the head'?, ARO *'ori*, *'oris\i* 'to scrape', PNCV **ko(r)i* 'scrape, shred coconut', PNI **kori* 'scrape', FIJ *koi* 'scrape (breadfruit)' (Geraghty 1990), ROT *'oi* 'scrape or grate; to plane', WFU *koi\a* 'to husk coconuts', PAL *kesíil* '(coconut or taro) is to be grated or scraped', *mengés* 'grate or scrape (usually, coconut, and sometimes, taro)'

For the final *s* in **ko(r/R)i(s)* see Arosi *'orisi* and the discussion further below.

(36) POC **ko(r/R)as* 'scrape out (coconut meat); dregs of strained coconut scrapings': ARO *'ora* 'scrape with a shell', *'oras\i* 'dregs of strained coconut scrapings', MOT *gor* 'to rasp, scrape; of a pig, after being killed not shaved, only scraped; scrape out the meat of *vusa*, young coconut, with the bracts, or top of shell', *goras* 'scrape out, grate, the hard meat of coconut with *vin-gar* [cockle shell]', PMC **kora* 'scrape (incl. coconuts)', FIJ *kora* 'refuse of scraped coconut', SAA *koras\i* 'scratch about (as a rat)', *koras\ie dunge* 'rake out a fire' (*dunge* 'fire'), GEL *gola* 'scrape, plane', *golah\i* 'scrape, plane; chafe, bruise, rub skin off; sharpen to a point, as an arrow or pencil; pudding made from *pana*, yam; make pudding; sting'

(37) POC **(k/g)asi* 'scrape out/off, strip off, peel off (takes as its direct object a noun phrase referring to the stuff scraped off, e.g the skin of tubers)'; also 'bivalve sp., used in scraping, etc.': LAK *kasi* 'scratch', *la\kasi* 'broken coconut shell; mussel or clam; mussel shell used as knife', PPN **kasi* 'bivalve shellfish (*Asaphidae*)', TIK *kasi* 'bivalve mollusc (*Asaphis violascens* Forskal), possibly other related bivalves also; shell traditionally used as cutting or scraping implement,...as food scraper for coconut, breadfruit' (Firth 1985), FIJ *qasi* 'strip off the shell or bark from a tree, or dry leaves from sugarcane', *qasi\ka* 'the shell or outside, the fibrous roots of plants such as yams, bananas (but not *yaqona* [kava])', and also *kasi* 'of trees, shed bark, as the dry bark of banana trees or the skin of *moci* [shrimp, very small prawn]; pluck, of banana leaves', note also *kasi* 'small roots of *yaqona* [kava] or *balabala* [tree fern sp.]', KLA *gesi*, *gisi\gesi* 'to peel, to husk'

(38) POC **(r/R)asik* 'grate, scrape (tubers, coconuts); scratch': MNM *rasiʔ* 'grate (e.g. cassava)', ZAB *rahi* 'grate, scratch (coconut, cassava)', CHE *rahi*, *ḡ\rahi* 'grate or scrape off (e.g. coconut or bark for making medicine)', MOT *ras* 'rub, scrape, scratch', *rasa* 'scrape, scratch, rub, with straight motions backwards and forwards; so, sharpen by rubbing backwards and forwards on a stone', ?KII *rosi* 'grate'

(39) POC **su(r/R)i* 'scrape (e.g. tubers)?; shave?': TOA *su\suli* 'scrape, scrub (e.g. sweet potatoes)', PNCV **suri*, **sur\ati* 'shave, scrape', SAA *suru*, *su\suru*, *suru\mi* 'scrape with a flint or shell or glass; to plane'

There are several items reconstructable for Proto Oceanic with the meanings 'scrape, grate' that contain the consonants *k*, *r/R* and *s*, in that order: **karis*, **karas*, **ko(r/R)i(s)* and **ko(r/R)as* (cf. also **(k/g)asi*, **(r/R)asik* and **su(r/R)i*). Blust (1988a) points out that a large number of lexical items meaning something like 'rub, scrape, scratch' are reconstructable for Proto Austronesian, all of which begin with a velar stop. Blust refers to this as 'initial consonant symbolism'. In the case of the POC items the symbolism is not restricted to just initial position; one finds what Blust calls (with respect to other PAN etyma) 'Gestalt symbolism': a recurrent configuration of sounds associated with similar meanings. (In fact, very much the same Gestalt symbolism is found also with the PAN forms meaning 'rub,

scrape, scratch' mentioned by Blust. Compare also English *scrape, scratch, scrub.*) Besides sound symbolism, it is also possible that in POC or perhaps in pre-POC times there was some kind of derivational relation among at least some of the forms; note that apparently unlike the other three terms, **ko(r/R)as* took as its direct object a noun phrase referring to the stuff scraped off (e.g. coconut meat), rather than a noun phrase referring to the object undergoing the scraping (e.g. a coconut). (Concerning **karas* and **(r/R)asik* see also the discussion in section 6.)

The multiplicity of forms having to do with scraping, etc. is not restricted to Proto Oceanic (or Proto Austronesian), and thus cannot be simply attributed to misreconstruction. A number of present-day languages from which data are cited in (33)-(36) have more than one term from that set: TLO (33, 35), SAA (34, 36), MOT (33 or 34, 36), GEL, ARO, FIJ (all having 33, 35 and 36).

(40) POC **qunap* 'fish scale; turtle shell; to scale fish': MTU *unah\ia* 'scale a fish', *una* 'fish scale', ARO *unah\i* 'remove shell from turtle, scale a fish', *una\una* 'scales, tortoise shell plates', PPN **qunaf\i*[12] 'fish scale, turtle shell; scale fish', TOK *unaf\i* 'scale (of fish), (to) scale', HAW *unah\i* 'scales of fish; scaly; to scale', TON *'uno* 'scales (of fish), shell (of turtle)', PMP **qunap* 'scales' (Dempwolff 1938)

5.3 PEELING

(41) POC **kulit* 'to peel, remove skin of st., to bark (a tree); (the) skin': MNM *ʔulit* 'peel, remove the skin, covering (e.g. of breadfruit seeds and canarium nuts)', TOL *kulit* (tr.) 'peel off, to bark, to skin' (Wright 1964), FIJ *kuli* '(the) skin, bark, peel', *kulit\a* 'peel cooked taro or food cooked in water; strip off the skin or bark of a tree', GEL *guli, gulit\i* 'to skin, bark, as one's skin or a tree; take the scab off a sore', *guli* also 'pull off anything sticking, as a stamp or plaster', ARO *'uri* (tr.) 'to peel', LAK *kulis\i* 'have a scrape, as the skin; remove the skin of a tree or fruit', *su\kuli* 'give taro a rough preliminary peeling', KRU *quli* 'skin', LNU *kuli\hi* '(the) bark', skin (of crocodile)', PMC **kuli* '(the) skin, bark, hide'

(42) POC **sisi* 'peel off, pare, strip, remove skin, covering, bark, lift off (most likely referring to peeling, etc., in long strips) (the direct object is a noun phrase referring to the covering, skin, etc.); pry open (e.g. shellfish); draw lips back (when smiling, grinning), thus baring the teeth': PPN **hisi* 'peel off in long strips', also **sisi* 'scoop out, gouge out (as meat from a coconut)', TON *hihi* 'scoop out, gouge out; (of clams, *vāsua*) open with a knife and detach the flesh)', EUV *hihi* 'shellfish spp.: *Janthinidae* and *Nerinidae*; slice horizontally', MNM *sisi\ʔ* 'to peel, pare (e.g. sweet potatoes, bananas), bark (a tree)', GED *sisi* 'pull up (off), peel off, husk, take off (one's clothes), draw up (the lips when smiling)', KOV *sisi* 'peel off bark or skin, strip leaves from frond, remove the midrib of a leaf' (Chowning, pers.comm.), SEN *sis* 'skin a pig' (Chowning, pers.comm.), CHE *hihi* 'pry apart, separate by prying, pry open', SAA *sisi* 'roll back as a fold; grin like a dog; lay bare the teeth', GEL *hi'hi* 'scoop out the white flesh of a coconut; push out, prise out; open (as a tin)', BAB *sisi\to* 'scrape off small hairs, etc. (of taro)', MOT *sis* 'rub or knock off skin or bark, flay'

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12 Biggs (n.d.) reconstructs PPN **quna* 'fish scale', but the evidence points to **qunafi* 'fish scale, turtle shell; scale fish'.

(43) POC **supi* 'to peel, pare': GED *supi* 'pare, peel (cut off thin slices)', LAK *suvi, su\suvi* 'peel taro', ARO *su, suhi* 'peel, pare', TLO *suhi\a* 'husk coconuts', FIJ *suvi, suvi\a* 'cut in pieces, chiefly of yams and breadfruit, generally lengthwise, but also of other food'

(44) POC **pili* 'peel by hand (fruit, cooked food)':[13] MAB *piili* 'to husk (like corn, *pitpit*)', KRU *pil* (pl., du.), *pli* (sg.) 'peel skin off a cooked vegetable; peel skin off by hand', MOT *wil* 'peel, turning the fruit over in peeling', ?KWM *a\ver\i* 'peel (as a hardboiled egg), skin (as a banana or animal), husk' (the KWM form may belong under (45) instead)[14]

(45) ?POC **waru* 'peel?; scrape?': PPN **waru* 'scrape', TOK *valu* 'implement used for scraping or scratching (i.e. spokeshave, breadfruit skin peeler made from a half coconut shell, etc.); scratch; (of a coconut) grate, scrape; (of a breadfruit) peel or skin (by scraping off the skin)', GRC *waṙu* 'to peel (as banana, tubers)', FIJ *wadru\c* 'to strip all the leaves and bark off a twig with one stroke of the hand; to clear the nose of mucus between thumb and index finger', WAY *waru* 'strip skin of certain plants', ?KWM *a\ver\i* 'peel (as a hardboiled egg), skin (as a banana or animal), husk' (the KWM form may belong under (44) instead), ?MNM *boaru* 'scrape (breadfruit, taro, etc.) in preparation for cooking'

(46) POC **sari* 'pare?; break off?; cut off?': GED *sazi* 'shave, pare', *sazi\nen kes* 'paring knife' (*kes* 'spoon made from coconut shell or k.o. snail shell'), MTU *dari\a* 'husk a coconut with the teeth, tear clothes with the fingers', KOV *sali* 'to cut thatch' (Chowning, pers.comm.), GEL *hari* 'cut with a knife, slide along, slice off (as in making a canoe)', TOL *ari* 'break or cut off coconuts, etc., by the bunch' (Wright 1964), PMC **saru* 'peel, slice; knife'

(47) ?POC **pelo?, *pole?* 'peel (e.g. foodstuff)': LAK *velo* 'remove the outer covering of a food to get to the edible part', *la\velo\la* 'the peeling or uncovering of a foodstuff', PPN **fo(l/r)e* 'peel or strip (as skin or bark)', **ma\fole* 'peeled'

5.4 PLUCKING

(48) POC **(p/b)uti*, also **bubut* 'pluck (feathers, hair (not fruit)); pull (weeds)': TOL *vut* 'to weed; pluck as feathers of a fowl, *i\vut* 'pluck off as feathers of a fowl, thatch off a house' (Wright 1964), TLO *vuti\a* 'pull out, pluck (out) (e.g. feathers)', FIJ *vuti\a* 'pluck hair or feathers; pull up weeds', *vuti* 'hair of the body, small feathers or down of birds', PPN **futi* 'pull up, out; pluck', TOK *futi* '(of hair, weeds, etc.) pull off (or out), (of fishing line while fishing) pull in, (of feathers) pluck', SEN *put* 'pluck' (Chowning, pers.comm.), MTU *butu\a* 'pull up grass, pull out hair or feathers', CHE *bubuth\u* 'pluck feathers', PAN **butbut, *puTik* 'pluck, pull out' (Blust 1972c). (The form **bubut* is reconstructed on the basis of Cheke Holo *bubuthu* and PAN **butbut*.)

5.5 WRINGING, SQUEEZING

(49) POC **pipik* 'press, squeeze st. (e.g. in order to extract liquid)': MNM *pipi?* 'squeeze in order to extract the contents (e.g. lemon, grated coconut)', GED *pipi* 'squeeze (out),

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13 The POC form bears a remarkable phonological resemblance to its English counterpart: **pili* and *peel*. However, given the fact that the normal Pidgin equivalent is *skinim*, it is highly unlikely that the forms cited in (44) are not true Oceanic words.

14 I am grateful to John Lynch for bringing the Kwamera form to my attention.

express, crush, pinch, strangle, compress, cramp, milk (cow, etc.)', PNG **vivi* 'squeeze', ARO *bibi* 'crush, squeeze, crowd', PMP **pitpit* 'to clamp, jam, pinch' (Dempwolff 1938)

(50) POC **pisak* 'squeeze (incl. grated coconut)': MNM *pisaʔ* 'squeeze (e.g. grated coconut)', GIT *pisa* 'squeeze', MAB *piizi* 'wring, squeeze', LNU *pičɛ\y*, *pɔ\pičɛ\y* 'squeeze (e.g. sago in water)'

(51) POC **poji* 'squeeze, wring (e.g. coconuts to extract the cream)': CHE *poji* 'squeeze, wring liquid, as in making coconut milk or medicine' (also *fro'i*; see (53)), TEO *posi* 'wring, squeeze', *i\posi* 'coconut strainer', GEL *pondi* 'squeeze, as in shaking hands', FIJ *voci* 'to skin or peel anything with a soft, flexible skin (e.g. cooked banana or taro)', PPN **fohi* 'remove skin, peel', PAN **pespes*, **mesmes* 'squeeze' (Blust 1983-84a)

(52) POC **losi* 'wring': TOA *losi* 'wring st. in order to extract liquid (e.g. clothes, grated coconut)', SAA *loosi*, *loi\loosi* 'squeeze, strain out coconut cream from *hero* [scraped coconut] with *unu* [the fibrous spathe of a coconut frond, used for straining cream from grated coconuts; see (66)]', ROV *li\loh\o*, *li\lohi\a* 'wring out, as a wet garment', GEL *loi\losi*, also *lei\lesi* 'sponge', ARO *rosi* 'wring, twist, squeeze, as coconut fibre in straining coconut scrapings', FIJ *lose* 'squeeze, wring, chiefly of the *yaqona* [kava] preparation'

(53) POC **poRos* 'squeeze out, wring out (liquid)': PNI **poros\(i)* 'squeeze', GIT *poro* 'wring', LAK *volo* 'work sago flour, squeeze the water out', MOT *woro* 'squeeze, wring out juice of herbs, liquor of fruits, over food, and things prepared for charms; add coconut sauce to *loko* [pudding of grated yam]', KRU *furas\i* 'wring, squeeze (e.g. in the preparation of coconut cream)', KOV *poho* 'squeeze, wring out; add coconut cream to food; make sago' (Chowning, pers.comm.), CHE *fro\'i* 'squeeze or wring liquid as in making milk or medicine' (also *poji*; see (51)), PAN **peRes* 'squeeze out' (Blust 1972c)

(54) POC **pirik* 'wring out (liquid, coconut cream)': ZAB *pirik\i* 'wring, squeeze (e.g. the milk from coconut)', CHE *purik\i* 'hold and twist, wring, as in squeezing water out of a sponge', LAK *viri* 'constrict (as a python), be mixed up or twisted (of a child's speech), twist, wind up, wind around',[15] MOT *vir* 'twist, wring, squeeze with a twist', *ga\vir* 'squeeze, wring, with the hands', ARO *bi\biri*, *bii\biiri* 'strain through coconut fibre; fall through such fibre (of coconut milk)', *biri\ngi* 'squeeze coconut milk through fibre', TOL *vir*, also *pir* 'to plait (as a basket)' (Wright 1964), ?PMC **fira(k)* 'plait, braid, weave'

It is not possible to determine fully what the distinctions were among the various terms for extracting liquid, but a number of contrasts can be postulated. Items (49)-(52) took as their direct object a noun phrase referring to the object out of which liquid is extracted, whereas (53) and (54) took as their direct object a noun phrase referring to the liquid extracted. Among items (49)-(52), (49) and (50) referred to squeezing by pressing, while (51) and (52) referred to squeezing by wringing. Item (54) referred specifically to a wringing action, while (53) may have been an unmarked term whose meaning subsumed both pressing and wringing. (As Ann Chowning has pointed out (pers.comm.), there are two basic ways used to extract coconut cream: wringing coconut gratings through coconut 'cloth', or squeezing them in one's hands.)

There was another term that may have been used to refer to wringing although its primary meaning was 'twist':

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15 I am grateful to Ann Chowning for pointing out the Lakalai form to me.

(55) POC **puloj* 'twist; twist fibers into string'; possibly also 'wring': LAK *pulo*, *pulo\pulo* 'wring out; squeeze coconut cream into taro; perform a hand movement of *e-rai* dance; scratch the ears by twirling a stick in them; twist fibres into rope', FIJ *vulo*, *vuloc\a* 'twist a thread on the knee', SAA *pulo* 'turn about, turn over, tie round, twist', PMP **pules* 'turn, twist' (Dempwolff 1938)

5.6 KNEADING, MIXING, STIRRING

(56) POC **mo(n/ñ)o* 'knead': MAB *moono* 'knead' (= 'mix'?), FIJ *mono* 'turn the taro pulp over and make it into a neat lump in preparation for pudding', ROV *mono*, *mono\a* 'squeeze'

(57) ?POC **(n/ñ)(a/o)tu* 'knead': PPN **natu* 'knead, mix with water', FIJ *natu* 'knead with pestle and mortar', KLA *notu* 'kneaded things'

(58) POC **balur* 'mix, stir (food)': MNM *balur*, *balur\a?* 'stir (food) vertically, so that what was at the bottom is now at the top and vice versa', PPN **palu* 'knead, mix'

6. MISCELLANEOUS

The following reconstructions are a by-product of the research for the present study. They are in no sense systematic, and although they are not directly related to the main topic, I felt it worthwhile recording them here.

(59) POC **pasi* 'split, separate, butcher, cut up (an animal for food)': FIJ *vasi* 'scrape off the crust of roasted yams, or reeds for making a reed-wall; split firewood', PPN **fasi* 'split, cleave', TON *fahi* 'split; slaughter (an animal) and cut it up for food (as a butcher does); chop (a coconut) in two', ZAB *pahe* 'cut up (e.g. a pig)'

(60) POC **bilo* 'cup; container for liquids': TLO *bilo* 'water container made from fruit of coconut tree', FIJ *bilo* 'cup or dish, originally a half coconut, made at the present day for drinking *yaqona* [kava] in', KIR *bino\bino* 'calabash, gourd made with coconut shell'

(61) POC **ibu* 'drinking container, container for liquids'?; 'a hollow in a tree holding water'?: PPN **ipu* 'container for liquid', ULW *ipu* 'a hollow in a tree holding water', ?LAK *e\piu* 'drinking coconut' (*e* article), ?KIR *ibu* 'calabash, gourd, toddy shell made of coconut shell', PMP **i(m)pun* 'collect, gather' (Dempwolff 1938). (Ann Chowning (pers.comm.) has suggested that LAK *piu* 'drinking coconut' may be a reflex of **ibu*, with metathesis; compare LAK *liu* 'to drink' and *la\kiu* 'tail' (*la* article), which reflect – with metathesis – POC **inum* and **ikuR*, respectively. According to Jeff Marck (pers.comm.), KIR *ibu* is most likely a borrowing from Polynesian.)

(62) POC **kabu* 'ladle, dipper?; cup?': PPN **kapu* 'cup-like container', RAR *kapu* 'a hollow receptacle used for containing fluid or other things or substances in: cup, basin, dipper; to dip up, ladle up, scoop up', PAN **ka(ŋ)bu(q)* 'ladle, dipper' (Blust 1972c)

(63) POC **kaŋa*, **(k)aga* 'drink by pouring liquid into open mouth, without putting container to lips'; evidence for **kaŋa*: ROV *kanga* 'drink water, etc., poured from a vessel held above the head', ZAB *kanga* 'drink, pour into mouth without touching lips', MAB *kaanga* 'drink without putting container to lips', GEL *kanga* 'drink by pouring down the throat (usual Melanesian method)', SAA *anga* 'to open (e.g. open the mouth to speak; have

the mouth open as in adenoidal cases)', FIJ *gā* root whose real meaning is 'the opening of the mouth, any gaping action'; also 'catch water in the mouth and drink it as it runs, e.g. from the spout of a bottle', *gā\gā* frequentative form of *gā*, and also in the sense of 'standing agape, not answering'; evidence for **(k)aga*: CHE *āga* 'drink without touching the container or spout to the mouth', LAU *'aga* 'pour water down throat from bamboo tilting vessel', *'aga\lu* 'pour water or drop food into mouth', TOA *'aa\'aga* 'drink by pouring liquid into the mouth (the container does not touch the lips)', ARE *āka* 'drink by pouring water from a container straight down the throat without touching the lips with the container'

The existence of ROV, ZAB *kanga*, MAB *kaanga* on the one hand, and FIJ *gā*, *gāgā* on the other, all meaning 'drink by pouring liquid into open mouth', and the possibility that Proto Oceanic had the term **(r/R)asik* (38) besides **karas* (34), both referring to scraping, suggest the presence of a verbal prefix *ka-* in Proto Oceanic.

(64) POC **qoso* 'food for a journey; food given in payment for work done': CHE *na\loso* 'food prepared for travelling; prepare food for travelling', GAO *na\ʔoso* 'food taken and consumed on a trip' (in CHE and GAO *na* is a fossilised article), BGO *oho* 'food for a journey', GEL *oho* 'food for a journey; payment for work in food', ARE *oto* 'provisions, food for a journey', SAA *oto* 'cooked food taken on a journey', FIJ *oco* 'food given in payment for a work or in course of it', PPN **qoho* 'provisions for a journey', TON *'oho* 'provisions, esp. for voyagers or for workmen', REN *'oso* 'rations or tobacco as for workers (provided by the employer) or for a sea trip; food offering as to accompany pre-Christian funeral ritual for the dead; serve as rations or food offering'

(65) POC **qucu* 'rub, make smooth by rubbing, wipe; make fire by means of fireplough': MTU *udu\a* 'rub a stick to make fire', GEL *uhu* 'rub, rub fire; scrape off skin by rubbing; cut design on forehead', SAA *usu*, *usu\usu* 'rub, daub, wipe, grate', TOL *uu* 'wipe' (Wright 1964), LAK *huru* 'remove the outside of *la-beho* or other shell by rubbing; rub',[16] *huru e-suka* 'make fire with the fire-plow' (*e-suka* 'the making of fire with the fire-plow; a fire-plow' (*e* article, *suka* 'scrape')), PMP **qujus* 'rub' (Dempwolff 1938)

(66) POC **unu(p)* 'the fibrous material of a coconut husk and/or of the spade of a coconut frond, probably used for straining (e.g. grated coconut to extract cream)':[17] SAA *unu* 'the fibrous spathe of a coco-nut frond, used for straining, *sasali*, the coco-nut cream from the grated nut', WAY *unu* 'straining cloth for kava, traditionally a fibrous material made from coconut husk (and perhaps the spathe of a coconut frond)', FIJ *i unu* 'a *yaqona* [kava] strainer', *unu* 'to enter deeply into a thing, as a spear', *unu\ya* (tr.) 'to drink in, absorb; to feel', *g\unuv\a* (tr.) 'to drink', MOT *unuv* 'to sink in, be absorbed, of a fluid', ROT *unu* 'cord made of coconut-fibre (*henu*), sennit', *unu\unu* 'fibrous integument growing at the top of the coconut-palm', SAM *unu* 'the strainer used in making oil, &c.' (Pratt 1878), 'woven wringer (used to extract dye from shreds of *'o'a* [tree, *Bischofia* sp.] bark, etc.)' (Milner 1966), TON *unu* 'to dip, to plunge into water or other liquid'

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16 I am grateful to Ann Chowning for pointing out the Lakalai form to me.

17 This reconstruction is due to Andrew Pawley first pointing out to me the existence of a Wayan cognate of the Sa'a form.

7. SUMMARY

As the preceding discussion demonstrates, members of Proto Oceanic society employed a variety of methods to prepare their food. Without doubt, the set of terms reconstructed here is not the final word on this topic. It is hoped that future research will add to the list, and that the glosses of at least some of the items reconstructed here will be refined. The results of this study give us some idea about how speakers of Proto Oceanic prepared their food, and – in broad terms – about what kinds of foodstuff they prepared. In order for these findings not to be buried under the relatively large amount of data presented here, a summary of the main results follows.

Proto Oceanic people cooked their food in at least the following ways: baking in stone ovens (items 5, 7 and 8), roasting in fire (12, 13), boiling and possibly also steaming in pots (15-17). At least some kinds of food were (optionally) wrapped (most likely in leaves) when cooked (22, 23). The preparation of some foods involved pounding, mashing at some point during the cooking process (24) and/or kneading (56, 57). Some kinds of foodstuff were preserved by drying, which may have included smoking (26). There is no linguistic evidence suggesting that preserving food by fermentation was practised.

Not surprisingly, meat was part of the diet of the Proto Oceanic people (21, 48, 59), and so was fish (40) and most likely shellfish (42). To prepare vegetable food (such as tubers and nuts), a variety of processing techniques were employed: scraping, grating, paring, peeling, cracking, husking (section 5). Coconut milk featured as an ingredient in preparing food (36, 49-54).

APPENDIX: LANGUAGES CITED

The following information is included: the abbreviation of the language name, followed by the full language name, the primary subgroup of Oceanic the language belongs in (where applicable), and the source(s) of the data.

ANJ	Anejom	Southern Vanuatu	Lynch (pers.comm.)
ARE	'Are'are	South-East Solomonic	Geerts (1970)
ARO	Arosi	South-East Solomonic	Fox (1978)
BAB	Babatana	Western Oceanic	Money (n.d.)
BGO	Bugotu	South-East Solomonic	Ivens (1940)
BRO	Bauro	South-East Solomonic	Fox (1978)
CAN	Canala	Southern Oceanic	Grace (1975)
CHE	Cheke Holo	Western Oceanic	White (1988)
DIO	Diodio	Western Oceanic	Ross (pers.comm.)
EAS	Easter Island	Remote Oceanic	Fuentes (1960)
EFJ	Eastern Fijian	Remote Oceanic	Geraghty (1990)
EUV	East Uvea	Remote Oceanic	Rensch (1984)
FIJ	Standard Fijian	Remote Oceanic	Capell (1973 [1941]), Geraghty (1990)
GAO	Gao	Western Oceanic	Lichtenberk (notes)
GED	Gedaged	Western Oceanic	Mager (1952)
GEL	Nggela	South-East Solomonic	Fox (1955)
GIT	Gitua	Western Oceanic	Lincoln (1977)
GRC	Grand Couli	Southern Oceanic	Grace (1976)

HAW	Hawaiian	Remote Oceanic	Pukui & Elbert (1986 [1971])
KAP	Kapingamarangi	Remote Oceanic	Lieber & Dikepa (1974)
KII	Kiai	Remote Oceanic	Ludvigson (1989)
KIR	Kiribati	Nuclear Micronesian?	Sabatier (1971)
KLA	Kilivila	Western Oceanic	Senft (1986)
KOV	Kove	Western Oceanic	Chowning (1991 and pers.comm.)
KRU	Kairiru	Western Oceanic	Wivell (1981)
KSR	Kosraean	Nuclear Micronesian?	Lee (1976)
KWM	Kwamera	Southern Vanuatu	Lindstrom (1986)
KWO	Kwaio	South-East Solomonic	Keesing (1975)
LAK	Lakalai	Western Oceanic	Chowning & Goodenough (n.d.)
LAL	Lala	Western Oceanic	Clunn & Kolia (1977)
LAU	Lau	South-East Solomonic	Fox (1974)
LEN	Lenakel	Southern Vanuatu	Lynch (1977)
LNU	Loniu	Admiralties	Hamel (1994)
MAB	Mangap-Mbula	Western Oceanic	Bugenhagen (pers.comm.)
MFA	Mele-Fila	Remote Oceanic	Biggs (1975)
MNM	Manam	Western Oceanic	Lichtenberk (fieldnotes)
MOT	Mota	Remote Oceanic	Codrington & Palmer (1896)
MRS	Marshallese	Nuclear Micronesian?	Abo et al. (1976)
MTU	Motu	Western Oceanic	Lister-Turner & Clark (c. 1954)
NAL	Nalik	Western Oceanic	Ross (pers.comm.)
NAM	Namakir	Remote Oceanic	Sperlich (1988)
NMI	Nemi	Southern Oceanic	Haudricourt & Ozanne-Rivierre (1982)
PAL	Palauan	non-Oceanic	Josephs (1990)
PAN	Proto Austronesian	N/A	Blust (1972a, 1972c, 1980a, 1983-84a, 1986), Ross (1988), Zorc (this volume)
PEO	Proto Eastern Oceanic	not a subgroup	Geraghty (1983)
PET	Petats	Western Oceanic	Cropp (1920-30)
PHG	Proto Huon Gulf	Western Oceanic	Ross (1988)
PMC	Proto Nuclear Micronesian	Nuclear Micronesian?	Marck (pers.comm.)
PMP	Proto Malayo-Polynesian	N/A	Dempwolff (1938), Blust 1980a, 1983-84a)
PNCV	Proto North-Central Vanuatu	Remote Oceanic	Clark (1988)
PNG	Proto Ngero	Western Oceanic	Ross (1988)
PNI	Proto New Ireland	Western Oceanic	Ross (1988)
PNS	Proto North-West Solomonic	Western Oceanic	Ross (1988)
POC	Proto Oceanic	N/A	
PON	Ponapean	Nuclear Micronesian?	Rehg & Sohl (1979)
PPN	Proto Polynesian	Remote Oceanic	Biggs (n.d.)
PPT	Proto Papuan Tip	Western Oceanic	Ross (1988)
PSS	Proto South-East Solomonic	South-East Solomonic	Geraghty (1990)
PTK	Proto Trukic	Nuclear Micronesian?	Marck (pers.comm.)
RAR	Rarotongan	Remote Oceanic	Savage (1962)
REN	Rennellese	Remote Oceanic	Elbert (1975)
ROT	Rotuman	Remote Oceanic	Churchward (1940)
ROV	Roviana	Western Oceanic	Waterhouse (1949)

SAA	Sa'a	South-East Solomonic	Ivens (1929)
SAM	Samoan	Remote Oceanic	Pratt (1878), Milner (1966)
SEN	Sengseng	Western Oceanic	Chowning (1985 and pers.comm.)
TEO	Teop	Western Oceanic	Spriggs (pers.comm.)
TIK	Tikopia	Remote Oceanic	Firth (1957, 1985)
TLO	Tolo	South-East Solomonic	Crowley (1986)
TOA	To aba'ita	South-East Solomonic	Lichtenberk (fieldnotes)
TOK	Tokelauan	Remote Oceanic	Simona (1986)
TOL	Tolai (a.k.a. Kuanua, Raluana)	Western Oceanic	Lanyon-Orgill (1960), Wright (1964)
TON	Tongan	Remote Oceanic	Churchward (1959)
TRK	Trukese	Nuclear Micronesian?	Elbert (1947), Goodenough & Sugita (1980)
TUN	Tungak	Western Oceanic	Ross (pers.comm.)
ULW	Ulawa	South-East Solomonic	Ivens (1929)
VNU	Vangunu	Western Solomonic	Lichtenberk (fieldnotes)
WAY	Wayan	Remote Oceanic	Pawley (pers.comm.)
WFU	West Futuna	Remote Oceanic	Dougherty (1983b)
WOL	Woleaian	Nuclear Micronesian?	Sohn & Tawerilmang (1976)
YAB	Yabem	Western Oceanic	Streicher (1982)
ZAB	Zabana (a.k.a. Kia)	Western Oceanic	Ama & Fitzsimons (n.d.)

Lichtenberk, F. "The raw and the cooked: Proto Oceanic terms for food preparation". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*. **C-127:267-288**. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.267*

MELANESIAN SAILORS ON A POLYNESIAN SEA: MARITIME VOCABULARY IN SOUTHERN VANUATU

JOHN LYNCH

One might expect that people living on the coasts of small islands would have an abundance of terms for things maritime and, if they had moved there from some other maritime area, that these terms would be inherited rather than borrowed. It therefore comes as something of a surprise to find languages in this position which have borrowed much of their maritime terminology from some other language. This paper examines the maritime vocabulary in the non-Polynesian languages of Southern Vanuatu, and focuses particularly on loans from Polynesian sources.[1]

1. THE LANGUAGES OF SOUTHERN VANUATU

One Polynesian language – (West) Futuna-Aniwa – is spoken in the Tafea (formerly Southern) District of Vanuatu. The remaining languages of the District, spoken on the islands of Erromango, Tanna and Aneityum, form a closed subgroup whose nearest relatives appear to be the other members of the Central-Eastern Oceanic subgroup of Oceanic (see Lynch 1978c, 1982c, Lynch & Tryon 1985). The Southern Vanuatu group itself divides into three subgroups:

(a) Erromangan, consisting of Sie, Ura and some now extinct languages (including Utaha and Sorung);

(b) Tanna, consisting of North Tanna, Whitesands, Lenakel, South-West Tanna and Kwamera; and

(c) Aneityumese, with just one language, Anejom.

A considerable amount of work has been done on the reconstruction of Proto Erromangan (Lynch 1983a) and Proto Tanna (Lynch 1982d), and a discussion of the development of Proto Oceanic phonology in the Southern Vanuatu languages appears as Lynch (1978c).[2]

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1 This is an expanded version of part of a seminar paper I gave at the Australian National University in 1982 (Lynch 1982c). I am grateful for comments received there and at the 1990 symposium, for numerous discussions with Les Groube on this general topic, and especially for comments and suggestions made by Ross Clark, Terry Crowley, Paul Geraghty, Andrew Pawley and Darrell Tryon. I also thank Mike Huber for assistance with fish identification.

In 'maritime vocabulary' I include terms for the physical environment, names of fish and other marine life, and terms relating to fishing and canoe technology.

2 I use here the orthography of Proto Oceanic proposed by Ross (1988). For individual languages, the orthography is generally that of the sources as listed in Appendix 1; however, for the sake of consistency and readability, in this paper *bw*, *b*, *d* and *g* represent prenasalised stops, *bw*, *pw* and *mw* velarised

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Pacific Linguistics, C-127, 1994.

However, reconstruction of the phonology of Proto Southern Vanuatu is not yet complete, because of a number of problems still to be solved. I do not attempt in this paper to give Proto Southern Vanuatu reconstructions for lexical items, but instead give reconstructed forms for lower-order subgroups or actual forms from individual languages.[3]

Maritime vocabulary will be treated under three separate headings: the physical environment in section 2; names of fish and other marine life in section 3; and terms for the canoe and its parts, and terms related to fishing in section 4. In each semantic area, I look at cases of continuity (i.e. where Proto Southern Vanuatu appears to have continued a Proto Oceanic form), and at cases of change (i.e. where Proto Southern Vanuatu appears to have innovated a form, or where one or more Southern Vanuatu languages appear to have borrowed a term from some other language).[4] I am particularly concerned with examining borrowings from (one or more) Polynesian languages. Such loans can be identified with relative ease in the Southern Vanuatu languages. In the case of some nouns, they incorporate the Polynesian article *t* + vowel, while with others (especially when the root is *t*-initial) they have no fused article. In a large number of cases, the retention of final vowels is a strong indicator of borrowing, as is the retention of vowels in pretonic (usually antepenultimate) position, since Southern Vanuatu languages generally lose vowels in these positions: thus a form like Proto Oceanic **malino* 'calm, peaceful' would probably be directly inherited into, say, Lenakel as ***amlin* or ***amlən*; the actual Lenakel form *amelinu*, however, shows retention of both pretonic and final vowels, and thus suggests a Polynesian source – most like West Futuna *marino* (cf. example (8)).

2. PHYSICAL ENVIRONMENT

Language abbreviations in this and the following sections, together with sources of data, can be found in Appendix 1; data on which Proto Erromangan and Proto Tanna reconstructions are based can be found in Appendix 2.

2.1 CONTINUITY

The following forms (examples (1) - (6)) appear to represent direct inheritance in Southern Vanuatu languages of Proto Oceanic forms for the maritime physical environment.

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bilabials, ʔ the glottal stop, θ the voiceless dental fricative, ʃ the voiceless palatal fricative, ɣ the voiced velar fricative, ŋ the velar nasal, and ə the mid central vowel.

3 A number of points should be noted in relation to the lexical reconstructions given in this paper. Firstly, very many nouns begin with *n* (and also *in* in Anejom), reflecting a fused article (deriving from Proto Oceanic (POC) **na*): where the root is derivable from a known POC form, then the reconstructed form of the noun consists of **n* (or **na*, **ne*, etc.) separated from the root by a hyphen (thus POC **kupeŋa* , Proto Tanna (PTN) **na-(kgɣ)apun* 'net'); where the root is not derivable from a known POC form, no hyphens occur (and thus PTN **namu* 'fish' might equally well have been **n-amu* or **na-mu*). Secondly, very many verbs have accreted an initial vowel, probably **a* (cf. Lynch 1992): such verbs are reconstructed as **a*-root (or as **V*-root since, here and elsewhere, when the identity of a protovowel cannot be reconstructed with reasonable certainty, the symbol **V* is used). Thirdly, hyphens are also used to separate elements in compounds, or in cases where the presence or absence (or, if present, the nature) of a prefix to a noun or a verb cannot be clearly established (e.g. POC **bakiwak*, Proto Erromangan (PER) **-baiu* 'shark': Sie *ne/mpou*, Ura *u/beu*). Other standard conventions apply.

4 I exclude from discussion here cases where forms in Southern Vanuatu languages do not continue Proto Oceanic forms and are not demonstrably borrowings, and where it appears that no Proto Southern Vanuatu reconstruction can be made.

In each example, the gloss at the beginning represents the meaning of the term in the languages of Southern Vanuatu; it also represents the meaning of all forms in other languages unless some other gloss is given for a particular item.

(1) 'sea'
POC **tasik* > PER **dey*, PTN **(n)-tahik*

(2) '(be) low tide'
POC **ma-masa* 'dry' ((or possibly **maqati*) 'low tide') > SIE *n/mah*, ANJ *in/mas*, PTN **(a)-ma(sh)a*

(3) 'detached reef'
POC **motu* > PTN ('land' +) **mwərah*

(4) 'reef'
POC **mwalo* > ANJ *in/moje*

(5) 'coral'
POC **laje* > ANJ *in/las*

(6) 'seaweed'
POC **lumut* > PTN **ləmus*

2.2 SOUTHERN VANUATU INNOVATIONS

There appear to be no forms which are clearly Proto Southern Vanuatu innovations in this semantic area.

2.3 BORROWING

The following terms (examples (7) - (13)) are probably Polynesian loans:

(7) 'bay'
PPN **[fai]awa* (> WFU *feiava*, ANW *fiava*): NTN *na/feafa*, WSN, SWT, KWM *nə/feafe*, LEN *nu/heafe*, ANJ *na/fayava*.

(8) '(be) calm (of sea)'
PPN **malino* (> WFU *marino*): NTN *ə/məlinu*, WSN *ə/melinu*, LEN, SWT *a/melinu*, KWM *a/mərinu*

(9) 'a wave'
PPN **peau* (> WFU, ANW *peau*): SIE *ni/mpiau*, NTN, WSN, LEN, SWT, KWM *peau*, ANJ *ne/peau*

(10) 'whirlwind'
PPN **qa(a)siosio* (> WFU, ANW *siosio*): WSN, LEN, SWT, KWM *siosio*

(11) 'wind (general term)'
POC **mataŋi* (> WFU *mtaŋi*): SIE *ne/mtaŋi*, NTN *metaŋ*, SWN *nə/metaŋi*, LEN, SWT *nə/mataaŋ*, KWM *nə/mətaŋi*.

(12) 'prevailing wind' (?)
PPN **tokelau* 'north wind' (> WFU *tokorau* 'west wind, south-west wind'):

LEN *tokolau* 'south wind', SWT *tokolau* 'south-east wind', KWM *takwarau* 'south-south-east wind'

(13) 'wind from the south or east'
PPN **toŋa* 'south (wind)' (> WFU *toŋa* 'south-east wind, *rui/toŋa* 'south wind', *retma/toŋa* 'east wind'): SIE *na/tuŋa* 'south wind', LEN, SWT, KWM *na/toŋa* 'east wind', LEN *uri/toŋa* 'south-east wind', KWM *uri/toŋa* 'south wind'

For the next two examples, there are (as far as I am aware) no Proto Polynesian reconstructions. However, phonological considerations suggest that the Southern Vanuatu forms have been borrowed from West Futuna-Aniwa:

(14) 'north wind'
WFU *ruetu*; ANW *ruotu* 'north': LEN *luatu*, KWM *ruatu*, ANJ *na/ruutu*; SIE *na/rwotu* 'east wind', SWT *luatu* 'north-east wind'

(15) 'north-east wind'
WFU *retuamlai*: LEN *luatuamlaai*, KWM *ruatu amrai*; SWT *luatuamlaai* 'north wind'

The form in (15) is clearly a compound incorporating the form in (14); it may well be that the two South-West Tanna forms have been misidentified, and that SWT *luatu* in fact refers to 'north wind' while *luatuamlaai* refers to 'north-east wind'.

The final example is less clearcut:

(16) 'west wind'
WFU *parapu*: SWT *nə/pelaap*, KWM *nə/parapu*; LEN *nə/pwelaapw* 'south wind'

The Kwamera form suggests a borrowing from West Futuna, but the Lenakel and South-West Tanna forms are not clearly borrowings, and in fact they *could* be the source of the West Futuna form. However, given the fact that many other names for winds appear to have been borrowed into Southern Vanuatu languages from West Futuna, I incline slightly to the view that West Futuna is the source language here.

3. NAMES OF FISH AND OTHER MARINE LIFE

3.1 CONTINUITY

The following forms (examples (17 - (23)) appear to have been directly inherited into the Southern Vanuatu languages from Proto Oceanic:

(17) 'shark'
POC **bakiwak* > PER **-baiu*, KWM *pakau* 'barracuda', ANJ *ne/pɣev*

(18) 'turtle'
POC **poñu* > PER **-avu*, PTN **iakw(u)*, ANJ *nahau*[5]

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[5] There are problems with establishing what the reflexes of POC **ñ* are in Southern Vanuatu languages, and in any case it is not clear that these forms do in fact derive from POC **poñu*. Ross Clark has suggested that they may be related to PNV **ʔavua* (which presumably does *not* derive from POC **poñu*); if this is the case, they still represent 'continuity', though of a different kind. (It is for this reason that, for example, the Anejom form *nahau* has been written as such, and not as *na/ħau* or *n/ahau*, since it is not clear if the *a* belongs to the fused article or to the root.)

(19) 'mullet'
POC **kanase* > ANJ *ne/ɣna*

(20) 'octopus, squid'
POC **nusa* > PTN **i(a)hi*, ANT *niθ*, (URA *wis*?)

(21) 'stingray'
POC **paRi* > SIE *u/var*, ANJ *in/ħar*, (PTN **vi(lr)a(a)kw*?)

(22) 'conch shell'
POC **tapuRi* > SIE *tovu*, WSN *toui*, ANT *in/tohou*

(23) 'sea-urchin'
POC **sopa* > PTN **suaifa*

The following item is rather less certain:

(24) 'k.o. crab'
POC **kamakama* > LEN *ia/kəm* 'k.o. land crab'

In addition, it is possible that a POC form **[ali]ali* 'flounder, flatfish' could be reconstructed on the basis of PPN **ali*, ANJ *n/ajaj*.

3.2 SOUTHERN VANUATU INNOVATIONS

The following terms (examples (25) - (34)) appear to be innovations in Proto Southern Vanuatu which are not demonstrably due to borrowings.[6]

(25) 'flying fish'
PTN **vVnis*, ANJ *nowa/ħiniθ*

(26) 'parrotfish'
SIE *moŋkum* 'fish sp.', PTN **ma(kg)əm*, ANJ *in/mokom*

(27) 'rabbit-fish'
SIE *mesen* 'fish sp.', PTN **mi(n)hin*

(28) 'eel (saltwater)'
SIE *poki*, ANJ *in/pei*; LEN *pəku* 'eel sp.'

(29) 'eel (freshwater)'
SIE *ne/ven*, PTN **vin*, ANJ *ne/ħeñ*

(30) 'bêche-de-mer'
PTN **sika(fu)*, ANJ *ni/syahou*

(31) 'lobster'
SIE *ye/loŋi*, SWT *luan/tahik*, KWM *ia/ren*, ANJ *ni/jvañ*

(32) 'fish-scale'
SIE *niŋeven*, ANJ *ninehen*

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6 Because I have not finalised the reconstruction of Proto Southern Vanuatu phonology, no PSV proto-forms will be given here; therefore the status of these items as PSV innovations must necessarily be tentative.

(33) 'k.o. crab'
SIE *ne/vlah*, PTN **-vilas*, (ANJ *in/ɣelas*?)

(34) 'k.o. shellfish'
SIE *nompri*, ANJ *nepjen*

Now consider the generic term for 'fish' itself:

(35) 'fish'
PER **nomu*, PTN **namu*, ANJ *numu*

This clearly does not continue POC **ikan* but, on the other hand, it may not be a Southern Vanuatu innovation. There are possible cognates in the following areas:

(a) Vanikoro (Solomon Islands): Buma *namuko*, Vano *namweka*, Tanema *namaka* (Tryon 1976b);

(b) Banks Islands (Vanuatu): Motlav *nomomo*, Sasar *momo*, Bek *mwomwo* (Tryon & Hackman 1983);

(c) Micronesia: "A defining characteristic of Ponapeic languages is that PMC [= Proto-Micronesian] **ika* 'fish' has been replaced by *mwamw*, or some predictable variant thereof" (Rehg & Bender 1990:16).

3.3 BORROWING

Lenakel has the term *tuna*, meaning 'tuna', borrowed from English, but I am not now sure whether this applies to the fish itself or to the canned variety. The remainder of the terms dealt with in this section are probably borrowings from Polynesian sources; I rely heavily on Robin Hooper's paper in this volume for identification of species and for Proto Polynesian reconstructions. West Futuna-Aniwa forms are derived from Dougherty (1983a), Capell (1984) and from Hooper's paper.

(36) 'whale'
PPN **taf(ou)ra?a* (> WFU *tafora*, ANW *tafara*): SIE *tovura*, NTN *təpla*, WSN *tafla*, LEN, SWT *toulhaai*, KWM *tafra*

(37) 'flying fish'
PPN **sasawe* 'Exocoetidae, flying fish sp.' (> WFU *save*): SIE *save*

(38) 'boxfish'
PPN **moamoa* 'Ostraciontidae, boxfish' (> WFU *momoa* or *moamoa*): ANJ *moamoa*

(39) 'coral trout' (?)
PPN **tonu* '*Plectropomus leopardus* (Lacépède), *P. maculatus* (Bloch), coral trout' (> WFU *tonu* '*Plectropomus* and *Cephalopholis* spp.'): KWM *tonu* 'grouper(?), k.o. fish with large mouth'

(40) 'surgeonfish'
PPN **palaŋi* '*Acanthurus* sp. of large size and elongate shape' (> WFU *paraŋi* 'k.o. fish'): KWM *paraŋi*[7]

(41) 'soldierfish, squirrelfish'
PPN **malau* 'general term for a number of fishes of the genera *Holocentrus*, *Adioryx*, *Myripristis* and *Flammeo*, soldierfishes and squirrelfishes' (> WFU *marau* '*Adioryx caudimaculatus* and others'): LEN *məlau* 'small red fish (usu. caught at night)', KWM *marau* 'soldierfish', *marauta* 'squirrelfish'[8]

(42) 'barracuda'
PPN **(st)apatuu* '*Sphyraena* spp., barracuda' (> WFU *tapatu*): LEN *təpətu*

(43) 'barracuda'
PPN **haohao* '*Sphyraena* spp., barracuda' (> WFU *tatao*): LEN *tetau* 'barracuda, sawfish', KWM *tataua*

(44) 'triggerfish'
PEP **kookili* 'Balistidae spp., triggerfish': KWM *koko* 'triggerfish', and note also KWM *kiri* 'Moorish idol fish'

(45) 'eel'
PPN **pusi* '*Gymnothoras* spp., sea eel': KWM *tə/pisi* 'k.o. seaworm'

Although with the next example I am not aware of a Proto Polynesian reconstruction, the source – on phonological grounds – seems to be West Futuna:

(46) 'bêche-de-mer'
WFU *kipori*: WSN, KWM *kipori*

One should also note the following:

(47) 'sea-snake'
WFU *taŋaroa*, ANW *taŋaro*: NTN, LEN, SWT *taŋalua*, KWM *taŋarua*

Of relevance here is the relationship with the Polynesian culture-hero Tangaroa.

The following are less secure examples, because the glosses either vary considerably or are unspecific:

(48) 'k.o. fish'
PPN **palu* '*Aphareus furcatus*, small-toothed jobfish; *Etelis carbunculus*, squirrel fish snapper; *Pristipomoides argyrogrammicus*, big-eyed snapper; *Tropidinius zonatus*, flower snapper: *Ruvettus pretiosus* (Cocco), oilfish': LEN *pwaru*, KWM *paru* 'swordfish'

(49) 'k.o. fish'
PPN **sa(a)putu* '*Lutjanus* sp.': SIE *sapwotu* 'fish sp.'

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7 There is another term in Kwamera for 'surgeonfish', and this is *prəŋsivur*. The second part of this term is *sivur*, which refers to the coconut lorry; what is interesting is that the first part of the term, *prəŋ*, may well be an *inherited* form (with loss of vowels in pretonic and final positions), whereas the term *paraŋi* seems to be a *borrowing* from West Futuna.

8 Hooper (this volume) also reconstructs PPN **taʔa* "*Holocentrus* sp., probably *H. spinifer* (Forskål), armoured soldierfish", and notes a number of cases where **malau* + **taʔa* (or sometimes **taʔa* + **malau*) occur (e.g. Tongan *malauta'a* '*Adioryx spinifer*'). While there is no evidence in the West Futuna sources for this particular combination, one can presume that Kwamera *marauta* also has a Polynesian source.

(50) 'k.o. fish'
PPN **ʔume* '*Naso* sp., unicorn fish': KWM *ume* 'k.o. fish'

(51) 'k.o. fish'
WFU *laŋo* 'fish sp.': LEN *laŋo* 'swordfish'

(52) 'k.o. fish'
WFU *sasua* 'fish sp.': LEN *sasua* 'grouper'

(53) 'k.o. clam'
PPN **pasua*: KWM *pahasua*

One 'reverse' borrowing should also be noted here, and this is the West Futuna form *numulou* 'dolphin, porpoise', which derives from Anejom *numulau* or *numulou* (note Anejom *numu* 'fish' in example (35); I cannot identify the second part of the compound).

4. CANOE AND FISHING TECHNOLOGY

4.1 CONTINUITY

Only a few terms in this semantic area seem to be directly inherited from Proto Oceanic:

(54) 'outrigger-float'
POC **lima* 'hand' > PER **ne-liman*, ANJ *nijmañ*[9]

(55) 'a paddle'
POC **pose* > SIE *ni/vuo* 'steering-paddle', PTN **n-/vaia*

(56) 'a net'
POC **kupeŋa* > PTN **na-/kgɣ)apun*, ANJ *no/upwon*, (PER **na(lL)(au)pwan?)*[10]

(57) 'a hook'
POC **kawil* > SIE *div/kau*, ANJ *in/ɣowoj*

(58) 'bait'
POC **pani* > PTN **n-/pian* (with metathesis?)

(59) 'to bail water'
POC **asu* > KWM *i/as*

The terms for 'outrigger-float' in the Tanna languages present some problems. The terms themselves are listed in example (60):

(60) 'outrigger-float'
NTN *rəmən*, LEN *rəmər*, SWT *ləməl*, KWM *temən*

All four terms appear to derive in some way or another from POC **saman*; however, only NTN *rəmən* derives *regularly* from **saman*. The other three languages show unexpected initial consonants – Lenakel *r* for expected *t*, South-West Tanna *l* for expected *h*, and Kwamera *t* for expected *h*. In addition, there is an unexplained development in the final

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9 The POC form **lima* 'hand' is also reflected in Anejom, as *nijma-*, with the meaning 'hand'. It is *not* so reflected in Erromango, however: cf. Sie *noru-*, Ura *deŋen*, *loŋun* 'hand'.

10 Note two problems here: firstly, the intrustive lateral (and loss of the velar) in the Proto Erromangan form; and secondly, the fact that in all three subgroups POC **ŋ* is irregularly reflected as *n* rather than as *ŋ*.

consonants in two languages, with Lenakel having *r* and South-West Tanna *l* for expected final *n*. Borrowing *may* be involved here, but West Futuna *ama* is clearly not the source.

4.2 SOUTHERN VANUATU INNOVATIONS

The following terms appear to be Proto Southern Vanuatu innovations:

(61) 'canoe'
PER **nala(iu)*, PTN **[na-]yyau*, ANJ *nelyau*[11]

(62) 'to fish with a net'
KWM *anai*, ANJ *anai*

4.3 BORROWING

The following terms (examples (63) - (66)) appear to be loans from Polynesian sources:

(63) 'mast'
PPN **tila* (> WFU *ʃira*): NTN, WSN, LEN, SWT *tila*, KWM *tira*

(64) 'outrigger-boom'
PPN **kiato* (> WFU *kiato*): NTN *noa-nə/kiatu*, WSN *noua-nə/ŋiatu*, LEN *(noua-)nə/kiatu*, SWT *kwa-nə/kiatu*, KWM n*ə/kiatu*, ANJ *na/kiato*

(65) 'fishhook'
PPN **matau* (> WFU *metao*): NTN *metao*, WSN, LEN *nə/metau*, SWT, KWM *kwa-n/metau*

(66) 'to paddle'
WFU *sua*: SIE *a/huwo*, URA, LEN *a/sua*, KWM *ə/sua*

The Tanna and Anejom forms in (64) and (66) do *not* appear to be directly inherited from POC **kiado* 'outrigger-boom' and POC **sua* 'paddle'; the expected directly inherited forms in Lenakel, for example, would be something like ***nəkiat* and ***asu* respectively. It seems clear, therefore, that these forms are Polynesian loans.

The following terms (examples (67) - (69)), though they ultimately have an English source, are most likely borrowed from Bislama (cf. Crowley 1990):

(67) 'canoe'
NTN, WSN, LEN, SWT, KWM *kənu*, ANJ *kinou*; Bislama *kenu* (also *kanu*, *kinu*)[12]

(68) 'mast'
SIE *mas*, ANJ *mas*, *inyi-mas*; Bislama *mas*

---

11 Terry Crowley has raised the question as to whether there is a relationship between these forms and POC **layaR* 'a sail' (which seems to have been lost in the Southern Vanuatu languages). While this is not impossible, the presence of the velar in the second syllable of the Tanna and Anejom forms would be difficult to explain.

12 The Bislama loans seem to be the standard forms for 'canoe' in the Tanna languages; the forms deriving from PTN **[na-]yyau* (cf. (61) above) are used (i) with the vague meaning of 'boat', and apply to ships, launches, and the like, and (ii) with the sense of a moiety or some other social division (along the lines of, for example, Maori *waka*). In Anejom, however, the inherited form *nelyou* seems to be used more commonly with the meaning 'canoe' than does the borrowed form *kinou*.

(69) 'an anchor'
SIE, WSN, SWT *aŋka*: Bislama *angka*

This last term is of interest, in that West Futuna has borrowed *two* terms for 'anchor': one, *haŋka*, clearly derives from Bislama; the other, *us*, is definitely non-Polynesian in its phonotactics, and in fact almost certainly derives from either North Tanna *us* or Lenakel *uus*.

5. DISCUSSION

It it clear that there has been considerable Polynesian lexical influence on the Southern Vanuatu languages in the semantic areas I have been examining. There are quite a number of terms for aspects of the physical environment (especially names of winds), names of a number of fish and other forms of marine life, and terms for parts of the canoe which clearly seem to be borrowed from West Futuna-Aniwa or, just conceivably, some other Polynesian language.

It should also be pointed out here that there are a number of other items of material culture which seem to have been borrowed into Southern Vanuatu languages from Polynesian sources, including terms for kava, bow and arrow, mat, platform or bed, rafters, tattoos and the dog. The culture-hero Mauitikitiki has also been adopted (e.g. Lenakel *Mwatiktik*) (see Lynch (1982c) for details).

One possible explanation for the number of Polynesian borrowings in this area of maritime terminology is that, having arrived by sea, speakers of Proto Southern Vanuatu turned their attention to the reef and the land, and did not exploit the deep sea to nearly the same extent as they did in more recent times.[13] That is, it is possible that they treated the sea as if it were a river – fishing from the beach, exploiting the reef, but not venturing much beyond.

It is interesting in this regard to note the changes in canoe technology forced on the New Zealand Maori by the new environment they found themselves in (see Biggs, this volume). The Maori abandoned the double-hulled outrigger with sails in favour of long narrow single-hulled canoes which were paddled rather than sailed, which were much more suitable for river navigation and inshore voyaging. The early inhabitants of Southern Vanuatu may have simply taken this a step further: having found an extremely fertile island, with abundant shellfish on the reefs, and no real need to sail anywhere else, they may simply have given up sailing almost totally. Haddon (1937:17), for example, states:

> Navigation has evidently played a minor role in the life of the Tannese. Today there is constant intercourse by means of small cutters, manned entirely by natives, between Aniwa and Tanna, but it is significant that the boats are owned exclusively by Aniwans; the voyages originate from that island, which is almost pure Polynesian.

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13 One particular small point of interest here is in the words for 'mast' and 'sail'. It will be seen from examples (63) and (68) that *no* Southern Vanuatu language has an indigenous word for 'mast': the Tanna languages have borrowed from Polynesian, while Sie and Anejom have borrowed from Bislama (the first part of Anejom *inyi-mas* simply being 'wood, tree'). It will also be seen that no mention at all was made in section 4 of forms for 'a sail'. In Sie, *nmah* means both 'cloth, clothes' and 'a sail', and this form may be related to Fijian *masi* 'tapa'. The form **nivVn* 'a sail' can be reconstructed for Proto Tanna; this does not have the additional meaning of 'cloth, clothes'. It may be that the earlier inhabitants had canoes without masts and sails, and that they subsequently borrowed these from the Polynesians.

It would appear, therefore, that having pretty much abandoned the use of canoes and the exploitation of maritime resources beyond the reef for some considerable time, the people of Southern Vanuatu were subsequently reintroduced to this technology by Polynesians from neighbouring Futuna and Aniwa, from whom they derived much of their modern-day maritime vocabulary.

APPENDIX 1: LANGUAGES AND SOURCES

The languages referred to in this paper, their three-letter abbreviations and sources of data are:

ERROMANGO	
Sie (SIE)	Capell & Lynch (1983)
Ura (URA)	Lynch (1982f, 1983c)
TANNA	
North Tanna (NTN)	Lynch (1974, fieldnotes)
Whitesands (WSN)	Lynch (1974, fieldnotes)
Lenakel (LEN)	Lynch (1977)
South-West Tanna (SWT)	Lynch (1982e)
Kwamera (KWM)	Lindstrom (1986)
ANEITYUM	
Anejom (ANJ)	Lynch (1982a, 1982b)
FUTUNA-ANIWA	
West Futuna-Aniwa (WFU, ANW)	Capell (1984), Dougherty (1983a)
OTHER	
Proto Oceanic (POC)	Grace (1969), Ross (1988), Wurm & Wilson (1975)
Proto Southern Vanuatu (PSV)	Lynch (1978c, 1982c)
Proto Erromangan (PER)	Lynch (1983a)
Proto Tanna (PTN)	Lynch (1982d)
Proto Northern Vanuatu (PNV)	Clark (1986)
Proto Polynesian (PPN)	Walsh & Biggs (1966), Wurm & Wilson (1975), Hooper (this volume)

(Note: For Proto Nuclear Polynesian (PNP) and Proto Eastern Polynesian (PEP) reconstructions for fish names I rely on Hooper's paper in this volume.)

APPENDIX 2: SOUTHERN VANUATU RECONSTRUCTIONS

Below is a list of all Proto Erromangan and Proto Tanna reconstructions cited in this paper, together with supporting evidence. These are basically 'bottom-up' reconstructions; I have not at this stage made any 'top-down' reconstructions, since these would depend on the finalisation of Proto Southern Vanuatu phonology, a task yet to be completed.

PROTO ERROMANGAN	
**-avu* 'turtle'	SIE *navu, nahvu*, URA *yavu*
**-baiu* 'shark'	SIE *nempou*, URA *ubeu*
**dey* 'sea'	SIE *toy*, URA *de*

**nala(iu)* 'canoe'	SIE *lou*, URA *nelai* (Utahai *atnelo* 'his canoe')
**na-(lL)(au)pwan* 'net'	SIE *naupwan*, URA *nalampon*
**ne-liman* 'outrigger-float'	SIE *nelman*, URA *neliman*
**nomu* 'fish'	SIE, URA *nomu* (Utaha *umu*)

PROTO TANNA

**(a)-ma(sh)a* 'be low tide'	NTN *as*, WSN *amas*, LEN *mha*, SWT *mas*, KWM *maha*
**i(a)hi* 'squid, octopus'	NTN *iiah*, WSN *iah*, LEN, SWT *ihi*, KWM *is*
**iakw(u)* 'turtle'	NTN, WSN *iou*, LEN *iau*, SWT *iakw*, KWM *iaku*
**ləmus* 'seaweed'	WSN *ləməs*, LEN, SWT *ləmus*, (KWM *iamha*?)
**ma(kg)ən* 'parrotfish'	LEN *makəm*, KWM *məkəm* 'blue fish'
**mi(n)hin* 'rabbit-fish'	LEN *mihin*, KWM *minhin*
'land' + **mwərah* 'island'	NTN, WSN *-mutah*, LEN *-murh*, KWM *-mwerəs*
**na-(kgɣ)apun* 'net'	LEN, SWT *nakapun*, KWM *nəpun*
**namu* 'fish'	NTN *nom*, WSN *namu*, LEN *nam*, SWT *kamaam*, KWM *nəmu*
**[na-]ɣɣau* 'canoe'	WSN *neŋo*, LEN *niko*, SWT *lau*
**nivVn* 'a sail'	NTN, WSN, LEN, SWT, KWM *nivən*
**n-pian* 'bait'	LEN *nəpien*, KWM *nəpiien*
**(n)-tahik* 'sea'	NTN *ntehi*, WSN *nətehi*, LEN *tehe*, SWT *tahik*, KWM *təsi*
**n-vaia* 'a paddle'	NTN, WSN, LEN, SWT *nəvea*, KWM *nəveia*
**sika(fu)* 'bêche-de-mer'	NTN *sikou*, LEN *səkou*, SWT *səkavh*
**suaifa* 'sea-urchin'	LEN *suevha*, KWM *suefa*
**-vilas* 'k.o. crab'	LEN *kəvləs*, KWM *iavira*
**vin* 'k.o. eel'	LEN *vin* 'freshwater eel', SWT *vin* 'saltwater eel'
**vi(lr)a(a)ikw* 'stingray'	WSN *vilau*, LEN *vəraau*, SWT *vəlaakw*, KWM *vəraku*
**vVnis* 'flying fish'	NTN, WSN, LEN, SWT *vənəs*, KWM *vənis*

Lynch, J. "Melanesian sailors on a Polynesian sea: maritime vocabulary in Southern Vanuatu". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*. **C-127:289-300**. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.289*

PROTO MICRONESIAN TERMS FOR THE PHYSICAL ENVIRONMENT

JEFF MARCK

1. INTRODUCTION[1]

The aim of this paper is to reconstruct Proto (Nuclear) Micronesian (PMC) terminologies concerning the physical environment and compare them to Proto Central Pacific (PCP) and Proto Cristobal-Malaitan (PCM). Proto Oceanic (POC) and Proto Austronesian (PAN) reconstructions are mentioned to the extent that they suggest origins for etymologies observed in Nuclear Micronesian (MC), Central Pacific (CP) and Cristobal-Malaitan (CM). But I do not argue their justifications in the way that I do for PMC, PCP and PCM reconstructions. The POC and PAN reconstructions cited here are from other works and are for general reference.

The PMC, PCP and PCM reconstructions were made or accepted from other works on the basis of the subgroupings given in the figure. The MC subgrouping is from Jackson (1983). The CM subgrouping is from Levy (1980). The CP subgrouping is from no particular source but is meant to show the criteria employed in the present work for reconstruction of a PCP form. Neither the internal subgrouping of MC nor Cristobal-Malaitan are well established. Conclusions are not drawn that depend on the validity of these internal subgroupings but etymologies internal to MC are labelled according to Jackson's groups. Evidence is not cited for PCP and PCM reconstructions given here but they were made according to standard comparative criteria: an internal form with an external cognate or internal cognates between two first order subgroups.

The theory of MC phonology follows Bender et al. (1990), Bender and Wang (1985), Jackson (1983, 1986), and Marck (1975, 1977). Four languages were considered in the reconstruction of PCM using the standard sources: 'Are'are, Arosi, Kwaio and Lau. Levy's (1979, 1980) sound correspondences were employed.

2. ORTHOGRAPHIES, ABBREVIATIONS AND SOURCES

The development of orthographies for the MC languages and PMC are discussed in the introductions to the individual language dictionaries, in Bender (1971), Jackson (1983,

1 The research for this report was carried out at the libraries of the University of Iowa and Colorado State University and I wish to thank Mac Marshall and Julie Wessling for facilitating the work as it progressed. I am also indebted to Robert Hsu at the University of Hawaii for providing a copy of the Proto Micronesian word list and Bruce Biggs at the University of Auckland for a copy of POLLEX (1992 version).

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 301-328.
Pacific Linguistics, C-127, 1994.

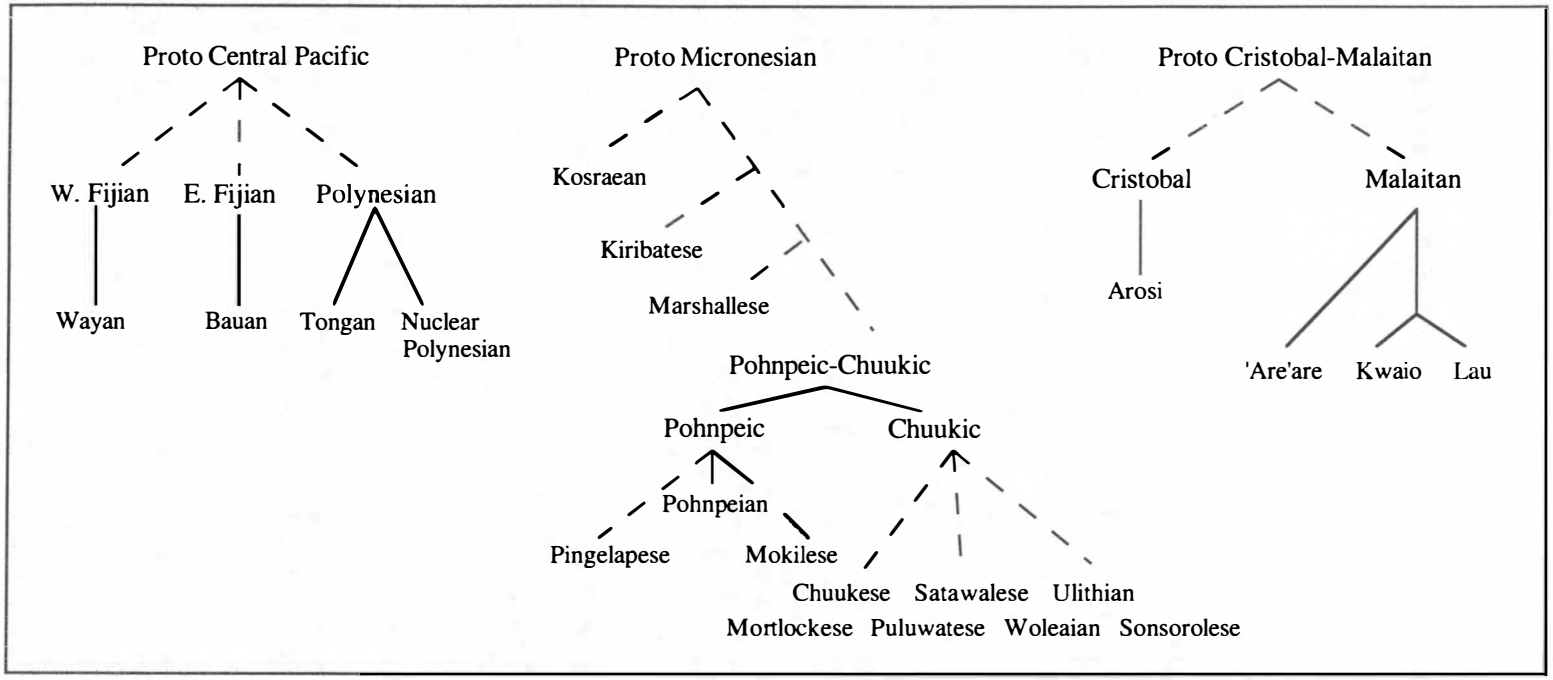

FIGURE: PRESUMED RELATIONS

1986) and Bender and Wang (1985). The organisation of the major PMC source (Bender et al. 1990) is described by Bender and Wang (1985). I shall abbreviate the 1990 work as PMC-B. Sound correspondences of living languages to PMC as reconstructed in PMC-B are reviewed thoroughly in Jackson (1983, 1986). Jackson's correspondences are employed here along with the orthography of those works, with three exceptions.

The first is the representation of final **-u* in PMC. Bender et al. (1990) was assembled at a time when we observed centralised or fronted reflexes of PMC **-u* in most living languages unless preceded by a back consonant or semivowel. This was considered an allophonic phenomenon in PMC at that point but words were reconstructed to PMC with **-u* where living languages showed evidence of a back vowel being maintained and **ú* where living languages showed consistent evidence of centralising. Since that time I have shown (Marck 1991) that Kosraean does not reflect this centralising behaviour. Though the final vowel is lost, it usually shows evidence of being back before disappearing. The centralising phenomenon should now be attributed to Proto Central Micronesian (all MC languages other than Kosraean) but should not be reconstructed for PMC.

The second exception involves my representation of apicals, which differs in two respects from Jackson (1983, 1986). For the correspondences involving the retroflexed stops, affricates and fricatives I employ **t'* rather than **c* for Proto Chuukic (PPCK) and for the correspondences involving PMC-B **s* and the *t* of living Chuukic languages I use PMC and PCK **s* rather than Jackson's **d*. MC orthographies, in general, are not easy to internalise and I believe the use of **t'* and **s* for both PMC and PPCK will better facilitate use of our materials.

The third difference here is my use of **z* rather than **s'* for the PMC correspondence resembling **s* reflexes but showing loss in Kosraean. Jackson (1983) also uses this convention but it was not incorporated into PMC-B.

Orthographies for the living languages are often modified from standard use in PMC-B. The Kiribatese orthography is rather transparent but most of the rest deserve some comment.

For Marshallese, PMC-B employs Bender's (1968) phonemic orthography. While very abstract, it is also very regular historically, something which is not true of the orthography which has developed in the history of Marshallese literacy and under which the entries of the dictionary are organised. The following special characters are employed for the Marshallese consonants here and in PMC-B:

' dark consonantal variants
" round consonantal variants

The vowels of Marshallese in Bender's (1968) phonemic analysis are represented orthographically in the present work as:

i high
é higher mid
e lower mid
a low

The phonological interpretation of Kosraean is problematic (Lee & Wang 1984). Phonetically there are such odd phenomena as the rounding or velarisation of many consonants before front mid vowels. These are represented in various ways

orthographically. The reader should consult the Kosraean dictionary and grammar (Lee 1975, 1976). For reference purposes, the orthography of the vowels is given here:

	Front	Central	Back
High	*i*	*ih*	*u*
Upper Mid	*e*	*uc*	*o*
Lower Mid	*ac*	*uh*	*oh*
Low	*ah*	*a*	*oa*

The representation of Pohnpeic vowels is as follows. The standard orthographies employ '*h*' to mark length but comparative practice (PMC-B) has been to repeat the base vowel and omit the '*h*'.

	Front	Central	Back
High	*i*		*u*
Mid	*e*		*o*
Low	*ae*	*a*	*oa*

We should also note that Pohnpeian orthographic *t* is the retroflexed affricate while orthographic *d* is the plain stop. Additionally, *-w* is commonly written as *-u* in the Pohnpeian orthography. The actual phoneme involved is employed in the present materials to the extent that Rehg has clarified their status in his contributions to PMC-B.

The representation of Chuukic vowels in PMC-B and this work differs only slightly from that of the standard orthographies. The difference is the representation of Woleaian orthographic '*oa*' as '*ó*', '*eo*' as '*é*' and '*iu*' as '*ú*' to correspond to Chuukic orthographies to the east:

	Front	Central	Back
High	*i*	*ú*	*u*
Mid	*e*	*é*	*o*
Front	*á*	*a*	*ó*

There is also a small difference in the representation of Puluwatese '*r*' sounds between Elbert (1972) and PMC-B. Elbert represents the retroflexed liquid (much like American English) with orthographic '*r*' and the trill with a diacritic above the '*r*'. PMC-B adopted plain '*r*' for the trill and '*rh*' for the liquid, in keeping with usages that have developed for Satawalese and Saipan Carolinian.

Orthographies for the other study languages and protolanguages are as found in the sources except for POC which has been standardised to Ross's (1988) orthography. Also, I use **f* for PCM where Levy (1980) uses **v*.

The orthography for Proto Central Pacific is that of Geraghty (1986) and that for Proto Polynesian from Biggs (n.d.).

ABBREVIATIONS AND SOURCES:

Subgroups:

AN	Austronesian
CM	Cristobal-Malaitan
CP	Central Pacific

MC	Nuclear Micronesian
PN	Polynesian
OC	Oceanic

Protolanguages:

PAN	Proto Austronesian (Wurm & Wilson (1975); PMC-B; POLLEX)
PCK	Proto Chuukic (All MC reconstructions are from Bender et al. (1990) except for a few from the present work.)
PCM	Proto Cristobal-Malaitan (from the present work employing Levy's (1979, 1980) orthography and sound correspondences)
PCMC	Proto Central (Nuclear) Micronesian
PCP	Proto Central Pacific (mostly from the present work employing Geraghty's (1986) orthography and sound correspondences)
PEMP	Proto Eastern Malayo-Polynesian (POLLEX)
PEO	Proto Eastern Oceanic (POLLEX)
PFJ	Proto Fijian (Geraghty 1986)
PMC	Proto (Nuclear) Micronesian
PMP	Proto Malayo-Polynesian (POLLEX)
POC	Proto Oceanic (Ross, pers.comm.: Ross's (1988) orthography is employed.)
PPCK	Proto Pohnpeic-Chuukic
PPN	Proto Polynesian (All PN reconstructions are from Biggs's (n.d.) POLLEX except for a few from the present work noted: '(J.M.)'.)
PNP	Proto Nuclear Polynesian
PSS	Proto South-East Solomonic (PMC-B; POLLEX)
PWMC	Proto Western (Nuclear) Micronesian

Source Abbreviations:

PMC-B	Proto Micronesian word list (Bender et al. 1990)
POLLEX	Proto Polynesian word list (Biggs n.d.)

Living Languages:

ARE	'Are'are (Geerts 1970)
ARO	Arosi (Fox 1970, 1978)
BAU	Bauan Fijian (Capell 1973)
CHK	Chuukese (Trukese)(PMC-B; Goodenough & Sugita 1980)
CRL	Saipan Carolinian, Elle dialect (PMC-B; Jackson & Marck 1991; author's notes)
FIJ	Fijian of unspecified dialect (POLLEX; PMC-B)
KIR	Kiribatese (Gilbertese)(PMC-B; Bingham 1908; Eastman 1948)
KSR	Kosraean (Kusaiean)(PMC-B; Lee 1976)
KWA	Kwaio (Keesing 1975)
LAU	Lauan (Fox 1974)
MAO	Maori (POLLEX)
MOK	Mokilese (PMC-B; Harrison & Albert 1977)
MRS	Marshallese (PMC-B; Abo, Bender, Capelle & Debrum 1976)
MRT	Mortlockese (PMC-B)
NGK	Ngatik (PMC-B)
PLP	Pulap (PMC-B)

PNG	Pingelapese (PMC-B)
PON	Pohnpeian (PMC-B; Rehg & Sohl 1979)
PSK	Pulusuk (PMC-B)
PUA	Pulo Annese (PMC-B)
PUL	Puluwatese (PMC-B; Elbert 1972)
SAA	Sa'a (POLLEX; PMC-B)
SAM	Samoan (POLLEX)
SNS	Sonsorolese (PMC-B; Capell 1969)
STW	Satawalese (PMC-B)
TIK	Tikopian (POLLEX)
TON	Tongan (POLLEX)
ULI	Ulithian (PMC-B)
WAY	Wayan Fijian (Pawley & Sayaba, forthcoming)
WOL	Woleaian (PMC-B; Sohn & Tawerilmang 1976)

3. THE EVIDENCE

The lists at the head of each subsection give the highest level reconstruction possible within MC, give a general gloss for the MC reconstruction and relate the reconstruction to an early OC form if one is known. After each list is the body of evidence for the MC reconstructions accompanied by comparison to PCP and PCM. The lists are for reference purposes only and should not be taken as a substitute for examining the discussion of data for level of MC reconstruction, OC gloss or problems with the gloss for the MC reconstruction. These are all generalised in the lists.

3.1 SUN, SKY, EARTH AND SEA

POC or Post-POC	PMC or Post-PMC	MC Gloss
**qaco*	**alo*	sun
**nusa*	**anu(s,z)a*	small island
**panua*	**fanua*	land, island
**pituqun*	**fituu*	star
	**ira*	light, flash
	**kat'awa*	heaven, 'Hawaiki'
**laŋit*	**laŋi*	sky, heaven
**ma(d)rama(R)*	**marama*	moonlight; (perhaps) the moon itself
**sawa*	**masawa*	ocean (the place)
**boŋi*	**p'oŋi*	night
**raqani*	**raani*	day
**rodrom*	**rot'o*	dark, unilluminated, darkness of night
**sakaRu*	**sakau*	reef, shoal; reef island
**sinaR*	**(s,z)ina*	light, shine
**tasik*	**tazi*	the sea, waters of the sea
**taqu(n)*	**ta(w)u*	sun, year, season
**dranum*	**t'anu*	fresh water

alo 'sun' (PMC): MRS *hal'*, PCK **alo*: MRT *yóól*, PUL *yóól*, CHK *óno-*, STW, CRL *-ólo-*, WOL *yalo*, ULI *yal*, PUA *yaano*, SNS *yaaro* 'sun'. PAN **qajaw*, **a(n)daw*, **qanjaw*, **a(n)daSaw* and **qan(j)Saw* 'sun' > POC **qaco* 'sun' > PCM **qalo* 'sky', PCP **qazo* 'sun'

Ross (1988:281, 340) reconstructs POC **qaco* 'sun' on the basis of non-Oceanic and Admiralty Islands reflexes. PMC and PCM share an irregular reflex of POC **c* in this form, supporting Blust's (1984b) suggestion of a subgroup.

anu(s,z)a 'small island' (PMC): PCK **anusa* 'small, probably uninhabited island': STW *alút*, WOL *alúta* 'small uninhabited island'; PAN **nusa* 'island' > POC **nusa* 'small offshore island' > PCM **anuta* 'place name for small islands', PCP **anuca* 'n. of island'

fanua 'land, island' (PMC): KIR *ann* 'dry land (opposite of sea), used in north only', MRS *yanéy* 'islet, island, land, landward', KSR *acn* 'land, place, site, shelter', PCK **fanua* 'land, island': MRT *fanúw'a-* 'island', CHK *fénúwa-* 'inhabited island', PUL *fanúwa-* 'island', CRL *falúwa-*, WOL *falúwa*, ULI *faluy* 'land, island', PUA *danúa* 'land', SNS *farúya* 'island'; PAN **banua* 'land, island' > POC **panua* 'inhabited island' > PCM **fanua* 'land', PCP **vanua* 'earth, land, island, country'

fituu 'star' (PMC): KIR *itoi*, MRS *yijiw*, KSR *itih*, *itu*, PON *usu*, PNG *usu*, MOK *uju*, PCK **fitúú*: MRT *fúú*, CHK *fúú*, PUL *fúú*, STW *fúú*, CRL *fúú*, WOL *fúsúú*, *fúús*, ULI *fis*, PUA *didi*, SNS *fiidi* 'star'; PAN **bituqen* > POC **pituqun* 'star': PCM **f(i,e)qu(u)* 'star', PCP **f(i,e)tuqu* 'star'

ira 'light, flash, lightning' (PCMC): KIR *iro* 'ignite, flash', MRS *wir(wir)* 'flame, flash, burning, blaze, lighted', PCK **ora* 'light, flash of light': CHK *wore(y)* 'put a light on, shine a light on', PUL *wora(ar)* 'light', CRL *were(wer)* 'lightning', WOL *were(were)* 'lightning, shine, light, flash', *were* 'light, firelight, gleam, flash'

The retention of PMC **r* in Kiribatese is irregular as is the raising and backing of its final vowel. The rounding of the initial vowel in Marshallese is irregular and we would expect the high vowel to have lowered. The rounding of the initial vowel in PCK is irregular. On the whole, this preliminary PMC-B reconstruction looks as if it has been made to accommodate irregular internal correspondences as well as irregular correspondences to external evidence. PMC-B speculatively relates the form to PAN **sinaR* > POC **sinaR* 'light, shine' but there is an obvious PMC reflex in PMC **(s,z)ina* 'light, shine'. (See MC **(s,z)ina* 'light, shine' in the current list.)

kat'awa 'heaven, 'Hawaiki'' (PMC): KIR *karawa* 'heaven, the blue sky; the skies', KSR *kasra* 'queen', *kuhsra* 'place name', *kuhsrao* 'heaven', *toh-kosrah* 'king of Kosrae', PON *kataw* 'mythical place name', PCK **kat'awa* 'mythical place name; basalt': CHK *achaw* 'mythical place name; basalt', PUL *yaraw* 'volcanic rock', CRL *aschaw* 'basaltic rock', WOL *gashawashawa* 'big flat rock at seaside'

Goodenough (1986) has discussed this set of lexical agreements and details of the semantic notion extensively and I will not do so here. I want, however, to point out that: (1) KSR *kuhsra* 'place name' seems the most regular of the possible reflexes of PMC **kat'awa* by comparison to PMC **tarawa* > KSR *tuhla* 'barracuda'; (2) The form apparently came to refer to rock, and probably basaltic rock, in PCK, a point not emphasised by Goodenough; and (3) The reconstruction forms a minimal pair with PMC **kat'awu* 'cloud' < POC **ka(d)rapuR* 'rain, cloud'. Trisyllabic cognates from CP and CM were not encountered although Goodenough (1986) suggests a possible relationship to a disyllabic Fijian form.

laŋi 'sky, heaven' (PMC): KIR *naŋ* 'cloud', KSR *lucŋ* 'sky, heaven', MRS *lag* 'sky, weather, heaven', *l'ag* 'storm', PNG *laeŋ*, MOK *loaŋ* 'sky', PON *laaŋ* 'sky, heaven', PCK **laŋi* 'sky, heaven': MRT *lááŋ*, CHK *nááŋ* 'sky, heaven', PUL *lááŋ* 'sky', STW *lááŋ*, CRL *lááŋ* 'sky, heaven', WOL *laŋi* '1. sky, 2. typhoon, rainstorm, wind', ULI *láŋ*, PUA *naaŋi* 'sky', SNS *raaŋi* 'sky, heaven'. PAN **laŋi(t)* 'sky, heaven' > POC **laŋit* 'sky' > PCM **laŋi* 'high, up, above', PCP **laŋi* 'sky'

marama 'moonlight, or perhaps the moon itself' (PMC): KIR *maama* 'moonlight', MRS *meram* 'bright, light, flash, glow, illuminate', KSR *mahlwem* 'moon, month', PNG *maeram*, MOK *maram*, PON *maram* 'moon', PCK **marama* 'moon, month': MRT *maram* 'moon', CHK *maram*, PUL *maram* 'moon, month', STW *meram*, CRL *maram*, *meram*, WOL *marama*, ULI *maram*, SNS *malama* 'moon', PUA *malama* 'moon, month'; PAN **damaR* 'light' > POC **marama(R)* 'be light, shining, bright' > PCM **madama* 'moon', PPN **malama* 'moon, month'

More common are reflexes of POC **pulan* 'moon': PCM **fula* 'moon', PFJ **vula* 'moon' a form which is not currently known in MC.

mazawa 'ocean (the place)' (PMC): KSR *meoha*, KIR *marawa*, MRS *metew*, PON *madaw*, PNG *maedaw*, MOK *madaw*, PCK **masawa*: CHK *mataw*, PUL *metaw*, STW *metaw*, CRL *metaw*, WOL *matawa*, ULI *madaw*, PUA *matawa* 'id.'; PCM **matawa* 'open sea'

This is one of the forms that Blust (1984b:109-111) puts forward as an innovation of the weakly defined Malaitan-Micronesian group. POC **masawa* was once proposed by Grace (1969) but Blust notes that the evidence internal to OC was limited to MC languages. Forms based on **sawa* are common in AN languages with meanings having to do with space and channels (Pawley, pers.comm.), a matter known to Grace and Blust. **Ma-* is a common prefix through all of OC. Thus the MC word continues an old AN form and has added a common OC prefix, something which CM languages have also done.

p'oŋi 'night' (PMC): KIR *boŋ*, MRS *bég*, KSR *foŋ*, PNG *pwoŋ*, MOK *pwoŋ*, PON *pwooŋ*, PCK **p'oŋi*: MRT *pwooŋ*, CHK *pwoŋu-*, *pwini-*, PUL *pwoŋi-*, STW *pwooŋ*, *pwoŋi-*, CRL *bwooŋ*, *bwoŋi-*, WOL *boŋi*, ULI *boŋu-*, PUA *pwooŋi*, SNS *pwooŋi* 'id.'; PAN **beŋi* > POC **boŋi* 'night' > PCM **boŋi*, PCP **bogi* 'night'

raani 'day' (PMC): MRS *rahan*, KSR *lwen*, PNG *raan*, MOK *reen*, PON *raan*, PCK **raani*: MRT *ráán*, CHK *ráán*, PUL *ráán*, STW *ráán*, CRL *ráán*, WOL *raali*, ULI *rááli-*, PUA *laani-*, SNS *laari* 'day'; PAN **daqaNi* > POC **raqani* 'daytime' > PCM **dani*, *daŋi*

rot'o 'dark, unilluminated, darkness, darkness of night' (PMC): KIR *ro(ro)* 'black, dark color', MRS *(ma)req* 'dark (*r* and *d* do not co-occur)' (i.e. **t'* > *q* because of a morpheme structure rule), KSR *lohsr*, PNG *roas*, MOK *ros*, PON *rot*, PCK **rot'o*: MRT *rosh*, CHK *roch*, PUL *roorh*, STW *rorh*, CRL *rosch*, WOL *rosho*, ULI *roco-*, PUA *loso* 'dark'; PAN **DeDem* > POC **rodrom* > PCM **rodo* 'dark(ness), night'

sakau 'reef, shoal, reef island' (PMC): KIR *rakai* 'coral shoal in a lagoon, reef', MRS *tekay*, *teked* 'strip of reef; long reef between two islets', KSR *tuhka* 'island, atoll', PNG *daekae* 'island', MOK *doakoa* 'atoll, small island, islet', PON *deke* 'small island', PCK **sakaú* 'uninhabited low island, small island': MRT *téé* 'uninhabited low island', CHK *téé* 'uninhabited low island with vegetation', PUL *téé* 'uninhabited reef island', STW *téé* 'uninhabited low island', CRL *téé* 'group of islands', WOL *téé* 'any outer island', ULI

dógóó 'long reef', PUA *takaú* 'group of islands, archipelago'; POC **sakaRu* 'reef' > PCM **ta'alu* 'shoal, shallow reef area', PCP **cakau* 'coral reef'

(See also MC **t'akau* 'rock, stone, reef' in section 3.5.)

****(s,z)ina*** 'light, shine' (PMC): KIR *-ina*: *ma-ina-ina* 'white', *ŋa-ina* 'daytime', MRS *jén* 'start a fire', PCK **sina* 'shine, light': MRT *tin, tina-* 'shine: used for fire, moon, lantern', *(t)tinn* 'shine, ray, brightness, beam', PUL *tin* 'shine, as the sun', STW *(t)tin* 'shine, ray, brightness, beam'; PAN **sinaR* 'ray of light'> POC **sinaR* 'shine' > PCM **sina* 'sun; to shine, give light', PCP **cina* 'illuminate, fish by torchlight'

Kiribatese is irregular in the loss of PMC **s* which usually > KIR *r*. The regular PMC > MRS is **(s,z)* > *t* and the form is somewhat distant semantically.

****tazi*** 'the sea; waters of the sea' (PMC): KIR *taari* 'sea, salt water', MRS *(law)jét* 'ocean, sea', KSR *(kihfihn)te* 'salt water', PNG *sed* 'sea', MOK *jed* 'sea water, salt', PON *seed* 'ocean, sea', PCK **tasi* 'sea water, sea': MRT *sáát*, CHK *sáát* 'salt water, sea', PUL *háát*, STW *sáát* 'sea', CRL *sáát* 'salt water, sea', WOL *tati* 'sea, ocean, sea water', *sati* 'id. (archaic)', ULI *táád* 'sea, ocean, water', PUA *taati* 'sea', SNS *taati* 'salt water, sea water; tide'; PAN **tasik* 'salt water' > POC **tasik* 'sea, sea water' > PCM **asi*, PCP **taci* 'sea, seawater'

****ta(w)u*** 'sun, year, season' (PMC): KIR *tai* 'time, season, harvest', *taai* 'the sun', MRS *jew* 'interim period between stormy seasons, usually a calm spell', PNG *saeu*, MOK *joau* 'sun', PON *sou* '(archaic) sun', PCK **taú*, **tawu-* 'sun, season, year': MRT *séé* 'season, dusk', CHK *séé-* 'year, season (in compounds)', *sowu-* 'time, season (in compounds)', *séé* 'sunset glow, rosy clouds in west just after sunset', STW *séé* 'sunset', WOL *taú(wata)* 'daylight, day, sun'; PAN **taqun* > POC **taqu(n)* 'season' > PCP **ta'u* 'year, season'

The MC correspondences often have more to do with a season or time of year than the sun, specifically. (See MC **a(w)u* 'air, climate, season' in section 3.2 and MC **alo* 'sun' in this section; see MC **a(w)u* 'air, season' in section 3.2 for discussion of PCM **au* 'southeast tradewind season' which may be cognate with the present form.)

****t'anu*** 'fresh water, non-saline flowing liquids in general' (PMC): KIR *ran* 'fresh water, sap, juice, liquid, milk, water', MRS *dan, danni-* 'water, liquid, beverage, fluid, juice, sap of coconut tree', KSR *sroano* 'juice, sperm, bath water, liquid', PON *ten* 'viscous, thick, colloidal, congealed', PCK **t'anú* 'fresh water, liquid': MRT *shaan* 'water', CHK *chaan, chénú-* 'liquid, juice; fresh water', PUL *rhaan*, STW *rhaan, rhanú-*, CRL *schaal, schalú-* 'water', WOL *shalú*, ULI *cáál* 'liquid, water', PUA *saarú*, SNS *saarú* 'fresh water'; PAN **(d,D)anum* 'water' > POC **dranum* 'fresh water' > PCM **danu* 'draw water, bail', PCP **dranu* 'fresh water'

3.2 WEATHER AND SEASONS

POC or Post-POC	PMC or Post-PMC	MC Gloss
**aŋin*	**aŋi*	wind, breeze, air
**au*	**a(w)u*	air, season
	**auniari*	whirlwind, waterspout
	**faŋi*	dry season, winter

	**iaa*	rainbow
**ka(d)rapuR*	**kat'awu*	cloud, rain
**malua*	**malua*	calm; calm, of the sea
	**malumalu*	storm, typhoon
	**m'arakii*	rainbow
**paRaRa*	**parara*	thunder
**apaRat*	**para(ta)*	tradewind
**raki*	**raki*	breadfruit season, season of plenty
**taqu(n)*	**tawu*	sun, year, season
**qusan*	**u(s,z)a*	rain

****aŋi*** 'wind, breeze, air' (PMC): KIR *aŋ* 'wind, air, breeze, gas, breath, atmosphere, climate', MRS *hagi-* 'wind, breeze', KSR *eŋ* 'wind, fart', PNG *aeŋ* 'wind, breeze', MOK *eŋ* 'air, breeze, wind', PON *aaŋ* 'wind, air', PCK **aŋi* 'wind, breeze, air': MRT *yááŋ* 'soft breeze', CHK *eni-* 'wind (in cpds)', PUL *yaaŋ* 'wind, air', STW, CRL *yááŋ*, WOL *yaaŋi*, ULI *yáŋ* 'wind, breeze, air', PUA, SNS *yaaŋi* 'wind'; PAN **aŋin* > POC **aŋin* > PCP **yagi* 'air, wind'

(See also MC **a(w)u* 'air, season', **para(ta)* 'wind, tradewind' in this section.)

****a(w)u*** 'air, season' (PMC): KIR *au* 'season, position of sun n/s of equator', PCK **aú* 'air, atmosphere': STW *yaú(chán)*, WOL *yaú* 'air, atmosphere'

This is a possible reflex of POC **taqu(n)* 'season' but this would involve irregular loss of the initial consonant in PMC. A possbile cognate from PCM with no irregularities is seen in PCM **au* 'southeast tradewind season'. Since PCM lost PSS **t* the comparison is ambiguous and PCM **au* could come either from a POC **taqu-* or **aqu-*. (See MC **ta(w)u* 'sun, year, season' in section 3.1.)

****auniari*** 'whirlwind, waterspout' (PPCK): PON *einiar* 'whirlwind', PCK **aúniari* 'whirlwind, waterspout, tornado, rainbow', MRT *awúniyar* 'whirlwind, tornado, rainbow', CHK *éwúniyár* 'whirlwind, waterspout, tornado', PUL *(ná)áwúniyer* 'waterspout', STW *(na)awúliyár*, CRL *(l)ayúliyár* 'tornado', WOL *(l)aúliyara* 'rainbow', ULI *(l)olyor* 'rainbow'

This may be analysable as **au-ni-ari* 'atmosphere-of- ?' where **-ari* had some as yet unreconstructed meaning along the lines of 'troublesome, fearful' or whatever. The form is not yet known outside MC and is reconstructable only to PPCK within MC.

****faŋi*** 'dry season, winter' (PWMC): MRS *(hagen)yag* 'wintertime, windy season, dry season ('wind from the north')', PCK **efaŋi* 'dry season, winter': MRT *(le)eféŋ* 'dry season', PUL *(le)efáŋ* '(in) season with few breadfruit', STW *(le)efáŋ* 'fall season, northern tradewind season', CRL *(le)efáŋ* 'winter, northeast tradewind season', WOL *yefaŋi* 'winter, season with few or no breadfruit'

Given the differences in compounding, we might suspect that the usage developed independently in Marshallese and Chuukic from PMC **faŋi* 'north'. External cognates have not been identified. (See MC **faŋi* 'north' in section 3.8.)

****iaa*** 'rainbow' (PWMC): MRS *yiyah* 'rainbow (W. dialect)', PON *aaia*, *iaaia* 'rainbow'

This is a good match but a very limited distribution. No external cognates are known at this writing. (See MC **m'arakii* 'rainbow' in this section.)

kat'awu 'cloud, rain' (PMC): KIR *karau* 'rain', MRS *kedaw* 'cloud, overcast', KSR *kuhsrao* 'sky, heaven', PNG *kaesaew* 'rain, to rain', MOK *koasoaw* 'cloud', PON *ketew* 'rain, to rain', PCK **kot'owu* 'cloud': MRT *woshow*, CHK *kuchuu-*, SNS *gosowu* 'cloud', PUL *worhow* 'white cloud', STW *worhow* 'rain cloud', CRL *oschow*, WOL *goshou* 'rain'; POC **ka(d)rapuR* 'rain'

(See **kat'awa* 'heaven' in section 3.1 with which it formed a minimal pair.)

malua 'calm; calm (of the sea)' (PMC): PNG *malun* 'calm, cloudiness', MOK *molun*, PON *malun* 'calm (of the sea)', PCK **malúa* 'calm (of the sea)': MRT *maléw'*, CHK *ménú*, *núwa*, STW *malú*, CRL *malú* 'calm (of the sea)', MRT *(m)malú* 'tired (of people)', WOL *malúwa* 'loose (as an untied rope)', PUA *núa* 'calm (of water)'

The final consonants of Pohnpeic are unaccounted for. I would suggest a possible POC or PEO **malua* 'calm, soft, gentle, slow, quiet' on the basis of MC correspondences to: PCM **maaluu* 'soft, gentle, flexible' and PCP **malua* 'gently, slowly, quietly'. The word is similar to words for 'shade'. (See PMC **luru* 'shade' in Section 3.9.)

malumalu 'wind, storm, typhoon' (PMC): PNG *melimeli* 'typhoon', MOK *melmel* 'storm, typhoon', PON *melimel* 'windstorm, typhoon', PCK **malúmalú* 'storm, typhoon': MRT *melúmel*, WOL *malúmalú*, ULI *malémalé* 'storm, typhoon', CHK *ménúmén*, PUL *málemál* 'storm', STW *málimal* 'typhoon', CRL *málimál*, *malúmal*, ULI *malémalé* 'typhoon, storm'

Ross (pers.comm.) relates this to a word around New Ireland reconstructable as **malu* 'wind'.

m'arakii 'rainbow' (PCK): MRT *(anún)mwarase*, CHK *mwárisi*, PUL *(yanú)mwarehiy* 'rainbow', STW *mwáresi* 'rainbow ('older people')'. ***rakiimi*** 'rainbow' (PCK): MRT *rásiim*, CHK *resiim*, CRL *rásiim* 'rainbow', STW *resiim* 'rainbow ('younger people')'

This doublet is known from eastern Chuukic languages only (see MC **iaa* 'rainbow' in this section). Given how little we sometimes know about the historical dynamics of Kosraean, it is not impossible that the *-lahkwem* and *-nwekwen* form in the Kosraean doublet (*lwelahkwem*, *nenwekwem* 'rainbow') derives from **-rakimii* and is somehow related to the Chuukic form.

parara 'thunder' (PMC): KIR *baa*, KSR *puhlahl*, MOK *palar*, PCK **parara*: CHK *paach*, PUL *pacc*, STW *(p)pacc*, CRL *pacc*, WOL *pacca*, ULI *parr*, SNS *pala*, PUA *paala* 'id.' (**parara* in PMC apparently > **parra* in PCK and then **pacca* in most of the living languages where **-rr-* is not generally tolerated); POC **paRaRa* 'thunder'

para(ta) 'tradewind' (PMC): PON *(nan)par* 'tradewind season', PCK **parata* 'tradewind': MRT *paras* 'rain that comes in due to wind', WOL *parasa* 'tradewind', PUA *panada* 'be windy, blow'. PMP **habarat* 'west wind' > POC **qapaRat* 'monsoon, rain winds' > PCM **aara* 'SE trades', PCP **avaa* 'hurricane, storm'

If PCM is cognate it has lost POC **p* which it did not regularly do (see MC **ara* 'south' in section 3.8). Chuukic appears to show the addition of a vowel to the final POC consonant while Pohnpeian shows an uncomplicated regular (POC > PMC) loss of the POC final C and PMC final V (given **para*). Neither Pohnpeian or Chuukic gives evidence of the initial POC syllable.

raki 'breadfruit season, season of plenty' (PMC): MRS *rak* 'south, summer', PNG *raek* 'breadfruit season', MOK *rók* 'breadfruit season', PON *raak* 'season of plenty, breadfruit season', *raki* 'winds (north or southwest)', PCK **raki* 'year, breadfruit season', MRT *ráák* 'year, season', CHK *ráás, resi-* 'breadfruit harvest season', PUL *ráák* 'principal breadfruit season', STW *ráák* 'year', *(nee)rák* 'summer, calm season, breadfruit season', CRL *ráágh* 'year', *(lee)rágh* 'breadfruit season', WOL *ragi-* 'year, summer season', ULI *ragi-* 'year, age, summer season'; POC **raki* 'seasonal wind' > PCP **draki* 'seasonal wind: westerly'

(See MC **ta(w)u* immediately below.)

ta(w)u 'sun, year, season' (PMC): see entry in section 3.1.

u(s,z)a 'rain' (PMC): KIR *uura* 'throw water onto by hand, sprinkle', MRS *wét* (Vi), *witey* (Vt) 'to rain (on)', MOK *wud* 'rain', PCK **usa*: MRT *úút, uta-*, CHK *wúút*, CRL *úút*, WOL *uta*, ULI *yuda*, PUA *úúta*, SNS *wúúta* 'rain'; PAN **quzan* 'rain' > POC **qusan* > PCM **uta*, PCP **'uca* 'id.'

3.3 TIME OF DAY

POC or Post-POC	PMC or Post-PMC	MC Gloss
**Rapi*	**faka-afi*	evening
	**l(u,a)tuu*	tomorrow
**malawa*	**mala*	dawn
**ñoRap*	**nanoa*	yesterday
**boŋi*	**p'oŋi*	night
**raqani*	**raani*	day
	**tora*	morning
	**-wata*	noon (suffixed to 'sun')

faka-afi 'evening' (PMC): KSR *ekuh*, PCK **faka-afi*: MRT *(lee)fááf*, CHK *fááf* 'evening meal, main meal', PUL *(le)fáf* 'evening meal', STW *fáff*, CRL *(lee)fááf* 'in the evening', WOL *fegaafi* 'last night', PUA *dakadi*, SNS *fakafi* 'evening'

The second morpheme of the PMC reconstruction is widely known in OC and AN in general: PAN **Rabi* > POC **Rapi*: PCM **lafi* 'evening', PCP **(R)avi*.

l(u,a)tuu 'tomorrow' (PMC): MRS *(yi)ljiw*, KRS *lutu*, PCK **latuu*, CHK *néwú*, PUL *layú*, STW *naú*, CRL *laay*, WOL *laúú*, SNS *(wa)radi* 'tomorrow'

External cognates are not presently known. (See MC **tora* 'morning' in this section.)

mala(wa) 'dawn' (PMC): PCK **mala(wa)*, CHK *(m)man*, WOL *manna-* 'dawn', MRT *(m)mala(we)*, STW *man*, CRL *maal* 'dawn, sunrise', STW *man(nátá)* 'sunrise'

I would reconstruct POC or PEO **malawa* 'dawn' > PCM **malawa*, PCP **(mala)malawa* 'dawn'.

nanoa 'yesterday' (PMC): KIR *(ŋkoa)nanoa* 'yesterday', *nanoa* 'the front, before', MRS *(yi)nney*, PCK **nanoa*, MRT *nanaw*, CHK *nánew*, PUL *nánewú*, STW *nánew*, CRL *lalew*, WOL *lalowa*, ULI *lalow*, PUA *nanoa* 'yesterday'; PAN **(ñ,n)eRab* > POC **ñoRap* 'before, formerly, yesterday' > PCM **nanola*, PCP **noa* 'yesterday'

The **na-* increment on the POC base is unique to CM and MC but the same increment seems to be present in PPN but applied to a different base: PPN **nanafi* 'yesterday'.

****p'oŋi*** 'night' (PMC): see discussion in section 3.1.

****raani*** 'day' (PMC): see discussion in section 3.1.

****tora*** 'morning' (PPCK): PON *sooraa(n)* 'pre-dawn hours (lit.: 'not day')', PCK **tora* 'morning', MRT *soor*, CHK *soor, sora-*, PUL *hora-*, STW *(yótó)sor*, CRL *(lee)sor*, WOL *(loo)sor* 'morning'

Depending upon external evidence that may develop we should perhaps assume that PCK reanalysed the PON type into a single morpheme and that the protoform was **tooraani.*

****("sun"-)wata*** 'noon' (PPCK): PNG *(sóu-)wasa*, MOK *(jau-)wata*, PON *(sou-)was*, PCK **(lee-alo-)wata*: CHK *(nee-yóno-)was*, PUL *(ley-ólo) wah*, STW *(lee-yólo-)was*, CRL *(lee-ólo-)was* 'noon', WOL *(tau-)wata* 'daylight'

Pohnpeic and Chuukic both have **-wata* suffixed to words meaning 'sun'.

3.4 MARINE, SUBMARINE AND COASTAL FEATURES

POC or Post-POC	PMC or Post-PMC	MC Gloss
**laje*	**laje*	coral
**laur*	**lau*	pool, pond
**maca*	**masa*	low tide; dry
**namo*	**nam'o*	lagoon, harbour
**napo*	**nao*	wave, surf
**ŋalu*	**ŋalu*	ocean wave, ocean swell, billow
**po(d)ra*	**ot'a*	coral reef
	**pailaŋi*	horizon
	**pasa*	tidal swamp
	**pesepese*	shallow
**bucoq*	**p'usop'uso*	foam, froth
	**p'ut(u,i)*	high tide
**sakaRu*	**sakau*	reef, shoal; reef island
**sawa*	**sawa*	channel, passage through reef

****laje*** 'coral' (PMC): MRS *l'ay* 'gravel', KSR *lahs* 'k.o. coral'; POC **laje* 'branching coral' > PCM **lade* 'branching coral', PCP **laje* 'branching coral'

****lau*** 'pool, pond' (PMC): KIR *nei* 'pond, pool, swamp, marsh', MRS *l"ey* 'pool', KSR *(in)luh(luh)* 'pond, shallow lagoon', MOK *le* 'bog, small taro patch', PON *lee* 'pool, lake', PCK **laú* 'pool, pond, puddle': MRT *léé(lé)* 'flooded area, flooded', CHK *néé* 'pond, pool, flooded place', *néénén* 'liquid contents of s.t.', PUL *léélé* 'to be full of liquid as a coconut or breast, liquid contents', STW *léé* 'pool, pond', CRL *léélé* 'all manner of standing water (puddles, pools, ponds, lakes), typically in reference to fresh water (n.); to be full of liquid contents (v.i.)', WOL *léé* 'dug-out well for bathing', ULI *loo* 'water storage'

Jackson (1983:380) suggests that the reconstructed meaning is a semantic innovation of PMC: "POC **lau* is reconstructed with the meaning 'open sea, seashore'. The PMC form for

the former of these meanings is **mazawa*". Grace (1969) reconstructs **lau* 'open sea, seashore' while Ross (1988:276) reconstructs **laur* 'sea' for the form. The present reconstruction appears to be the PMC reflex of that form. It was replaced by **mazawa* for the 'ocean' meaning in PMC as Jackson observed and PCM as Blust (1984b:109-111) later observed. (See **mazawa* 'ocean' in section 3.1.)

****masa*** 'low tide, dry' (PMC): KIR *mara* 'moistened, soaked, softened', MRS *mat(mat)* 'sponge, pad (Ralik)', KSR *mwes* 'low tide', PNG *mad* 'low tide, shallow', MOK *mad* 'portion of reef exposed at low tide', PON *mad* 'dry'; ****mamasa*** 'low tide, dry' (PWMC): MRS *mmat* 'protrude from surface (water or land), emerge', PON *mmad* 'dry', PCK **mmasa* 'low tide, dry': MRT *mmat*, CRL *mmat*, ULI *mmad* 'low tide, dry', CHK *mmat* 'low tide, be at low tide', PUL *mmat* 'to be low tide', WOL *mmata* 'low tide', PUA *mmata* 'be dry, shallow'; PAN **(ma)maja* 'dry up' > POC **(ma)maca* 'evaporate, dry up; low tide' > SAA *mamata* 'dry', PCP **maza* 'dry, empty (of liquid)'

****nam'o*** 'lagoon, harbour' (PMC): KIR *namo* 'harbour', MRS *nam'* 'secondary lagoon', KSR *nwem* 'deep area in lagoon', MOK *lam* 'lagoon', PON *naamw* 'lagoon, deep place inside barrier reef', PCK **nam'o* 'lagoon': MRT *nóómw*, CHK *nóómw*, PUL *nóómw*, STW *nóómw*, CRL *lóómw*, WOL *lamwo*, ULI *laamw* 'lagoon', PUA *namwo* 'lagoon, lake'

Mokilese is irregular in **n* > *l* and **m'* > *m*; PAN **namaw* 'sheltered water' > POC **namo* > PCM **namo*, PCP **namo* 'lagoon'.

****ŋalu*** 'ocean swell, billow': MRS *gél* 'ocean swell, mounting wave which does not break, billow', PNG *(pwuu)ŋal* 'deep sea, where the ocean is blue', MOK *ŋalŋal* 'low tide'; POC **ŋalu* 'ocean wave': PCM **ŋalu*: LAU *ŋaluŋalu* 'a rough confused sea'; PCP **gwalu* (POLLEX) 'wave'

****ot'a*** 'reef' (PMC): KIR *ora* 'reef, shoal', MRS *wed* 'coral reef, coral, coralhead', KSR *(in)sroac* 'passage in reef', MOK *wos* 'reef', PON *oot* 'reef (archaic)', PCK **ot'a* 'reef': MRT *woosh*, CHK *wooch*, *wocho-*, STW *woorh* 'reef', CRL *woosch*, *woscho-* 'reef (the whole lagoon platform up to the breakers)', WOL *wosho*, ULI *woco* 'reef', PUA *wosa* 'reef, coral'

The final vowel is reconstructed on the basis of Kiribatese and Pulo Annese evidence. **Ot'o* is suggested by Woleaian and Ulithian. The Kosraen cognate is somewhat doubtful. The reconstruction is a good match for PCP **voda* 'rocks in sea' and we might reconstruct POC or PEO **po(d)ra* 'reef, reef rocks'. (See MC **sakau* 'reef, reef island' in section 3.1.)

****pailaŋi*** 'horizon' (PWMC): MRS *paylég*, PCK **pailaŋi*: MRT *payilé̱ŋ*, CHK *(p)peyinen*, PUL *(yóro)páálaŋ*, STW *(p)payileŋ* 'horizon'

The form is not known externally; it is multimorphemic and may have meant 'arm/wing of the sky'.

****pasa*** 'swamp' (PMC): KSR *pat* 'hole', *(tuh-)pahsrpahsr* 'plain, flat, level', MRS *pat* 'swamp', MOK *pad* 'depression', PON *paad* 'dent, depression, puddle', PCK **pasa* 'tidal swamp': CHK *paat*, *pata-* 'tidal inlet, offshore gully in the shallows', PUL *paat*, *pata-* 'swamp', PUA *paata* 'a piece that is cut out'

The second Kosraen consonant is irregular. The Pulo Annese correspondence is weak semantically. The form is similar to a PAN reconstruction: PAN **payah* 'swamp' but no probable cogates were identified in CM or CP.

pesepese 'shallow' (PWMC): MRS *péjpéj* 'shallow, superficial', *pijpij* 'shallow', MOK *poadpoad* 'shallow', PON *pedeped* 'shallow', PCK **pese* 'shallow', **pesepese* 'become shallow': MRT *pet*, CHK *(p)pet*, PUL *(p)pet*, STW *pet*, CRL *pet*, WOL *pete*, PUA *pete* 'shallow', MRT *petepet* 'become shallow', CHK *(á)petepeet* 'shallow', PUL *petepet* 'shallow', STW *petepete(tá)* 'become shallow'

p'usop'uso 'foam, froth' (PMC): KIR *b'urob'uro* 'froth, bubbles, foam, lather', MOK *pwudo* 'v.i., to sweat', PON *pwudopwud* 'foam, scum', *pwudo* 'perspiration, sweat'. The form irregularly had the following PCK outcome: ***p'urop'uro*** 'foam, froth': MRT *(a)pwurópor*, *pwuropwuro-* 'foam', CHK *pwuropwur* 'bubble, foam, suds', *(pw)pwur* 'be bubbling, in a lather', PUL *pwuroopwur* 'foam', STW *pwuropwur* 'foam, bubbles, froth', CRL *bwurobwur* 'foam, froth', *bwuro(long sáát)* 'be incoming tide (Vi.)', WOL *buroburo-* 'foam', PUA *pwulopwulo* 'foam'; PAN **busa(h)* > POC **bucoq* 'foam, froth' > PCM **furo* 'to bubble, boil, be churned up', PCP **vuso* 'foam, froth'

Note that PCM had an irregular **s* > **r* as did PCK.

p'ut(u,i) 'high tide' (PCMC): KIR *(ia)buti*, MRS *(yi)bij* 'high tide'

Evidence for the form is limited to Kiribatese and Marshallese.

sakau 'reef, shoal; reef island': see section 3.1.

sawa 'channel, passage through reef' (PMC): KIR *rawa*, MRS *tewe-*, PNG *daw*, MOK *daw*, PON *daaw*, PCK **sawa*: CHK *taaw*, STW *taaw*, CRL *taaw*, WOL *tawa*, ULI *daw*, PUA *taw*, SNS *(t)taawe* 'channel, passage through reef'; PMP **sawaq* 'channel' > POC **sawa(ŋ)* 'strait, passage between islands' > PCM **tawa* 'channel, landing place', PCP **sawa* 'channel'

3.5 SAND, SOIL AND ROCKS

POC or Post-POC	PMC or Post-PMC	MC Gloss
*patu	*fatu	rock, stone
	*lape	a kind of clay
*maka	*maka	stones for throwing
	*mat'aro	mud
	*pika	sand, beach, sandbank
	*p'alu	taro patch
*belu	*p'elu	dirt, soil
*baro	*p'aro	flat underwater rock
	*p'et'e	coral lime, limestone
*tanoq	*tano	ground, earth, soil
*sakaRu	*t'akau	rock, stone
	*waani	pumice

fatu 'rock, stone' (PMC): KIR *ati-* 'prefix for stone, rocks in compounds', MRS *hajhaj* 'hard rock, substance of clam shell', KSR *paht* 'cornerstone', *pot* 'stone wall', PCK **fatú*: MRT *faaw'*, CHK *faaw*, *féwú-*, PUL *fawú-*, STW *faay*, CRL *faay*, *fayú-*, WOL *faú*, ULI *fás*, PUA *daadú*, SNS *faadú* 'rock, stone'; PAN **batu'* > POC **patu* > PCM **fau*, PCP **vatu* 'stone, rock'

The Kosraen retention of **f* as *p* is not the dominant pattern in Kosraen where loss of **f* is more common (Jackson 1983:326-329). They are possibly loans.

lape 'k.o. clay' (PMC): KSR *lap* 'id.', PCK **lape* 'red clay, used for caulking': PUL *lápi(n)* 'red dye consisting of earth, used for canoes', STW *lápe-* 'red clay, used for caulking', WOL *lapa-* 'red clay, used for caulking between boards'

maka or perhaps ***fatu-maka*** 'stones for throwing' (PMC): KIR *maka(re)* 'habit of throwing stones', PCK **fatu-maka* 'gravel', MRT *faw'u-mó*, STW *móók* 'field for playing marbles or with small stones or shells', CRL *faúmó*, WOL *faúmwage*, ULI *fas-mwag* 'gravel', PUA *dadimaka*, SNS *fadúmaka* 'gravel, pebble'

The form is not specifically associated with 'sling' in MC as it sometimes is elsewhere: POC **maka* 'throw, sling' > PPN **maka* 'stone, rock; to sling, hurl'. There is also: CM-ARO *maka* 'Adam's apple', *ma'a* 'hard'

mat'aro 'mud' (PCK): PCK **mat'aro*, MRT *méshór* 'mud, muddy', CHK *ma(ch)chaa(ch)* 'muddy', PUL *merhar*, STW *merhór*, CRL *mmeschar*, WOL *masharo-*, ULI *mócor*, PUA *masalo-* 'mud'

The form is limited to Chuukic and no external cognates were found.

pika 'sand, beach, sandbank' (PMC): KIR *bike* 'beach sand, sand bank', MRS *pike(y)*, *pike(-)* 'flat land surface', KSR *puhk* 'sand', PNG *pik* 'beach, sand', MOK *piik*, *pike-* 'sand', PON *piik* 'sand', PCK **pika* 'beach, sand bank, sand islet or island': MRT *piya-* 'beach', CHK *pise-* 'sand, sandy islet (in place name compounds)', PUL *piik* 'name of island: Pikelot', STW *piik* 'name of small sandy islands', *pigha-* 'sand, beach (in place name compounds)', WOL *pigha* 'sand islet'; ***pikapika*** 'sandy' (PMC): KSR *puhkpuhk*, PON *pikapik* 'sandy' (also MRS *piyépéy* 'sandbank; to build up a pile of rocks'); ***pipia*** 'sand, sandy, sand spit, beach' (PWMC): MRS *ppéy* 'sandbank; to build up a pile of rocks', PCK **ppia* 'sand, sand spit, sand beach': MRT *ppe* 'beach, sand', CHK *ppi* 'sand, sand spit, beach', PUL *ppi* 'sand', STW *pii*, *piya-* 'beach, beach of', *ppia-* 'sand', CRL *ppi*, *ppia-* 'sand, sandy, sand beach, sand spit', WOL *ppiya* 'sand, sand beach', ULI *ppiy* 'sand, sand beach, beach', PUA *piia* 'sand', SNS *ppiiya* 'sand'

p'alu 'taro patch, soil as found in taro patch' (PMC): KSR *fahluhl* 'type of taro', MOK *pweel* 'taro patch, taro swamp', PON *pweel* 'dirt, soil, earth, ground', *pweli(pwel)* 'dirty, soiled', PCK **p'alú* 'taro swamp': MRT *pwéél*, *pwélú-* 'taro patch', CHK *pwénú-* 'fresh water swamp, taro patch', PUL *pwéél* 'swamp garden, as for taro', STW *pwéél* 'taro patch', CRL *bweel*, *bwélú-* 'taro swamp', WOL *belú* 'taro patch'

Ulithian has *bol* 'taro patch' but it would appear to derive from a merger of pronunciations with **p'elu* 'dirt, soil' > *bol* 'soil, taro patch'. It should be noted that the semantic reconstruction is biased towards the Pohnpeic/Chuukic meaning and could have been innovative at that level. The PMC form could just as well have meant '(kind of) taro' as it does in Kosraen. At any rate the PMC form would have had to do with taro and its cultivation. (See discussion after following reconstruction.)

p'elu 'dirt, soil' (PMC): KIR *bon* 'black soil, leaf mold, humus', MRS *bél* 'taro swamp', PCK **p'p'elú* 'soil, dirt, dirty', MRT *pwpwel* 'dirt, dirty', CHK *pwpwúnú-* 'soil, earth, dirt, soot (stem)', PUL *pwpwél* 'dirt, ground, to be dirty', STW *pwéén* 'dirt, soil', CRL *pwpwel* 'soil, earth, ground, dirty', WOL *(b)belú* 'soil, dirt', ULI *bol* 'soil', PUA *(p)ponú* 'soil, earth'

The ***p'alu*** and ***p'elu*** minimal pair is a very tenuous suggestion and all the forms may simply derive from a common source rather than a minimal pair. I would relate the second reconstruction to BAU *benu* 'refuse from food; offal' and BAU *veluvelu* 'in *duka veluvelu*, very dirty'. Possibly it is related to PEO **bwela* 'dirty' > PPN **pela* 'dirty (as mud); decayed'. There is also an interesting resemblance of PMC **p'alu* to MAO *paru* 'dirt, dirty, excrement; mud', *paruparu* 'dirty'.

p'aro 'flat underwater rock' (PMC): KIR *b'a* 'rock or ledge, continuous and solid; firm as a rock', MRS *bar* 'rock', PCK **perou* 'beach rock': CHK *piru* 'beach rock', PUL *poroow* 'sandstone', WOL *porou* 'beach rock, huge flat rock', PUA *polow* 'beach rock'

The PCK correspondence to Kiribatese and Marshallese is irregular in the first consonant, in the first vowel, and in the addition of a final vowel. Internally, it is a rather tenuous group of correspondences but there is a strong resemblance to: PCM **baro* 'flat underwater rock': LAU *baro* 'a flat rock in the sea', KWA *balo* 'flat reef stones'. I have reconstructed the same meanings for PMC and PCM based on general agreements but specifically that seen between Woleaian and Lau/Kwaio. Cognates were not encountered in other study languages. The PCM-PMC correspondence could be further evidence for Blust's (1984b) suggestion of a CM-MC group.

p'(a,e)t'e 'coral lime, limestone' (PMC): KSR *fasr* 'limestone, coral lime', MOK *pwoaoas* 'limestone', PON *pweet* 'lime made from coral', *pwetepwet* 'white', PCK **pwet'e* 'coral lime, limestone', **pwecepwece* 'white': MRT *pweesh* 'lime', *pwéshépwésh* 'white', CHK *pweech* 'powdered lime (made by burning coral limestone', *pwecha(-)* 'to be white (stem)', PUL *pweerh* 'coral lime, as used for white dye, etc.', *pwerh* 'to be white, as pandanus leaves for thatching', STW *pweerh* 'lime', *pwerhepwerh* 'white', CRL *bweesch* 'coral lime', *bweschebwesch* 'white', WOL *beshe* 'lime', ULI *bec* 'lime', PUA *pwese* 'coral lime for betel nut'

****tano*** 'soil, earth, ground' (PMC): KIR *tano* 'sand, soil, clay, ground, land', PCK **tano* 'soil, earth, ground', MRT *sóón* 'land that has been cleared for a house', CHK *sóón* 'the earth (versus heaven)(archaic)', PUL *hóón* 'surface, ground, floor, bottom', STW *sóól* 'land, soil (generic)', WOL *(te)talo* 'soil, earth, ground', ULI *talo(p)* 'earth', PUA *(to)tano* 'soil, earth, ground'. MRS has *jene(-q)* 'footprint' and KSR has *sroŋi* 'soil', neither of which are very satisfactory candidates as cognate. PAN **tanah* 'earth, land' > POC **tanoq* 'earth, soil' > PCM **ano* 'earth, land, ground', PPN **tano* 'cemetery, grave' (J.M.): TON *tano* 'place of burial, cemetery', TIK *tano* 'grave'

****t'akau*** 'rock, stone' (PCMC): KIR *rakai* 'rock, reef, block of coral rocks', MRS *dekay* 'stone, rock, gravel, flint', PNG *saekai* 'stone', MOK *sakai* 'rock', PON *takai* 'stone, rock'

The internal evidence for this form alone suggests reconstruction to PCMC. Given PMC **sakau* 'reef, reef island' it is apparent that a minimal pair had developed at about PMC times. Lack of a Kosraen cognate prevents reconstruction of the present form to PMC itself. While Kiribatese has the 'reef, block of coral rocks' sense this may be due to the emergence of homophony between this protoform and the reflex of PMC **sakau* 'reef, etc.'. MC evidence other than Kiribatese suggests that the present form meant simply 'rock, stone' and didn't necessarily have a common sense relating specifically to coral. (See MC **sakau* 'reef, reef island' in section 3.1 for MC synonym/near homonym and a discussion of external cognates.)

fatu waani 'pumice' (PMC): KSR *yotwen* 'basalt', KIR *waan*, MRS *(tila)han*, MOK *ween*, PON *waan(pei)*, STW *(wu)wan*, PUA *waani* 'pumice', WOL *(u)waali* 'lava rock'

All languages but Kosraen appear to have dropped the PMC **fatu* portion including Pohnpeian that appears to have added it retrospectively. From this we can also reconstruct POC or PEO **fatu manu* 'pumice' > PCM **fatu manu(manu)* 'pumice', PNP **fatu manu* 'pumice'.

3.6 HIGH ISLAND FEATURES

POC or Post-POC	PMC or Post-PMC	MC Gloss
**malo*	**malo*	hollow, depression, valley
	**pili*	moving water (river in some languages)
	**ppala*	hill
	**p'aŋa*	hole, cave
	**p'aro*	box, container, hole, cavity (cave in some languages)
**pupu*	**p'ulu*	fall, flow (the base for river and stream in some languages)
	**p'uŋu*	to fall (the base for river and waterfall)
	**t'uku*	mountain
**puna*	**una(una)*	spring of water
**waxo*	**wao*	valley
**solo*	**zolo*	n. mountain, peak, pinnacle v.i. appear and disappear over horizon
	**lozo*	tip of canoe mast (assumed to be a metathesised form of **zolo*)

****malo*** 'concaveness, depression, valley' (PCMC): KIR *mano(no)* 'valley, depression, hollow, dent', *m'ano* 'hollow, concave', PON *mwoaloal* 'dent, depression', PCK **malo* 'hollow, depression, area within armpit, elbow': MRT *mólé(n)* 'area within elbow and armpit', CHK *(nee)móón* 'valley', PUL *móól* 'valley (rare), elbow joint', STW *(lee)mólo-* 'area under arm, inside of elbow'

There is occasionally some shift of **m* to *m'(mw)* in most of these languages when the following vowel is phonemically or phonetically round (cf. Kiribatese and Pohnpeian). Attributing the 'valley' sense to the reconstruction is problematic as the meaning in seen only in Kiribatese and two Chuukic languages. A more conservative assessment of the protoform's semantics would not include the 'valley' sense and would explain it in some living languages as an extension of the 'concaveness, depression' sense. The form is apparently cognate with POC **malo* 'submerge, reef, indented' > PCM **malo*: ARE *maro* 'submerged coral reef'. Possibly it is related to PPN **ŋalo* 'disappear'. (See MC **wao* 'valley' in this section.)

****pili*** 'moving water' (PMC): MRS *pil* 'trickle; dribble; drop of liquid', KSR *pul* 'move, dive with a splash', PNG *pil* 'water', MOK *pil(lap)* 'river', PON *piil* 'water, liquid', *pil(lap)* 'river', *pili(tik)* 'stream'

This is the Pohnpeian base for 'river'. It is presented here to show that it apparently did not originate in an older form meaning 'river'. The form contrasts internally with KSR *infacl* 'river, stream, creek' for which no cognate has been identified and PCK **t'anu-p'uup'uu* 'stream, river': CHK *chénúpwuupwu* 'stream, river', PUL *rhaanú pwuupwu* 'river', CRL *schalúbwuubwu* 'waterfall, river, stream; any flowing or running (fresh) water'. No known cognates outside Chuukic. (See MC **p'ulu* 'fall, flow' in this section.)

****ppala*** (PCK) 'hill': MRT *ppal* 'hill', CHK *ppan* 'hillside, steep slope', STW *ppan*, CRL *ppal* 'hill'

The form was not seen outside Chuukic and contrasts with: KSR *iŋiŋ* 'hill, mound, knoll, dune', PON *dool* 'small mountain, hill', *kumwukumw* 'small hill', *uluul* 'pillow, small hill', *mpwoampw* 'rise, low hill'. A possible MC agreement with PN is seen in that of PON *kumwukumw* 'small hill' with PPN **tumutumu* 'summit'. The correspondence of PON *k* to PPN **t* would suggest a loan from a PN language where PPN **t* had gone to *k* such as in Colloquial Samoan (cf. SAM *tumutumu* (Col. *kumukumu*) 'top (of trees, hills), peak, height, zenith'). But there is no general suggestion of PN influence into Pohnpeian and the resemblance may be fortuitous.

****p'aŋa*** 'hole, cave' (PCMC): KIR *baŋa* 'hole, cavern, excavation, hiding place, refuge, den, lair, net, eelpot, snare, mosquito net', PCK **p'aŋa* 'hole, cave': CHK *pwaaŋ* 'hole, cave, cavity, pit, tunnel, hollow, vagina', *pwaŋe(ni)* 'make a hole or space in s.t.', PUL *-pwaŋ* 'hole, classifier in counting', CRL *bwaaŋ* 'k.o. hole', WOL *(b)baŋa* 'crevice, small holes in arms', PUA *pwaŋa* 'vagina'

****p'aro*** 'box, container, hole, cavity' (PMC): KIR *b'aro* 'provision box, small box; overflow hole: depression where water stays', KSR *fahr* 'cavity, hole, pit, hollow stem', MOK *pwoar* 'hole', PON *pwoaoar* 'hole, cave', *pwaar* 'hole for planting yams', *pweri(niak)* 'hole for planting yams', PCK **p'aro* 'box, container for possessions': MRT *pwóór*, *pwóro-* 'box', CHK *pwóro-* 'box, chest, crate, coffin', PUL *pwóór* 'box', STW *pwóór* 'box for possessions, container, crate', CRL *bwóór* 'box for possessions', WOL *baro* 'box'

PMC **r* is not regularly retained in Kiribatese. The Chuukic semantics are limited to 'box' but the other cognates have fairly definite 'container' notions that are extended to the physical environment. Pohnpeian alone appears to have extended the general 'enclosure' sense to caves. (See MC **p'aŋa* immediately above.)

****p'ulu*** 'fall, flow' (PMC): MRS *béwél'(tegteg)* 'overflow (*tegteg* = intensifier)', KSR *fuhl* 'to fall upon, fall to', PON *pwil* 'to flow, to rise or flood (of a stream)', PCK **p'uu* 'flow, esp. of fresh water': MRT *pwu*, *pwuu(pwu)* 'flow, esp. of fresh water', CHK *pwu* 'to flow, of fresh or salt water', *pwuu(pwu)* 'to flow, of a stream', PUL *pwu* 'to flow', STW *pwu* 'to flow', *pwuu(pwu)* 'to be flowing', CRL *bwuu(bwu)* 'to flow; a waterfall'

PCK is seen as irregularly losing PMC **l* but possible external cognates are consistent with the PCK rather than the PMC: POC **pupu* 'leak, drip, spill out', PPN **puupuu* 'rise the mouth, gargle'.

****p'uŋu*** 'fall, as rain or a person (there is also, commonly, a 'breaking waves' sense)' (PCMC): KIR *buŋ* 'going down, descending,', MRS *big"* 'fall', *big"(n'ew)* 'breaking waves, high surf', MOK *pwuŋ* 'break, sound of breaking waves', PON *(koro)pwuŋ* 'small waterfall', *pwuŋi(dek)* 'break, of waves, splash (Vi), *pwuŋu(r)* 'splash, wash up on shore (Vt)', PCK **púŋú*, **p'uŋu-* 'fall, as rain or a person', **púŋúpúŋú* or **ppúŋú* 'to break, of waves': MRT *púŋú(téw)* 'fall down', *pwuŋu(show)* 'rainfall', *ppúŋú(n)* 'surf', CHK *púŋ*

'fall, as rain or as on a slippery surface', *púŋú(tiw)* 'fall down', PUL *púŋi(tiw)* 'fall down', *púŋúpúŋ* 'to break, of waves', STW *púŋ* 'to fall, to rain (Vi)', *púŋutiw* 'fall down', *púŋúpúŋ* 'breaking waves, surf', CRL *púŋ* 'fall, trip', *púŋútiw* 'fall down', *puŋu(schow)* 'to rain', *púŋúpúŋ* 'falling (as a teetering object/person), pattering (as rain)', *pwpwuŋupwpwuŋ* 'the sound of breaking waves', WOL *(p)púŋú-* 'to fall, drop, come down suddenly', ULI *(p)puŋ* 'fall', PUA *púŋú* 'fall, make a sound', SNS *púŋú* 'fall'

It seems that this root came into PCK with a reinterpretation of PMC **p'* as **p.* In addition to the 'breaking waves' meanings one can note the use of the root in a word for 'small waterfall' in Pohnpeian.

****t'uku*** (PCK) 'mountain': MRT *shuuk*, CHK *chuuk*, *chuka-*, PUL *r'uuk*, STW *rhuuk*, *rhuku-*, CRL *schuugh*, *schughu-*, WOL *shugu*, ULI *cugu*, SNS *duuku* 'mountain'

There is also the use of **t'uku* as a placename for the Chuuk lagoon and the correspondences are regular through Chuukic. However, they seem to be loans into the non-Chuukic that use it: MRS *riq*, KSR *ruk*, MOK *ruk* 'Chuuk', PON *ruk* 'Chuuk; to hide'. Jackson (1983) suggests that the aggressive navigators of the PUL-PLP-PSK area may be responsible for the non-Chuukic pronunciations as *rh* is the common reflex of **t'* in these languages. The Chuukese definition includes verbal senses of 'heaping' and 'piling' and 'heaped up' or 'piled up'. Perhaps a cognate external to Chuukic will eventually emerge with those general meanings. (See MC **zolo* 'mountain' in this section.)

****una(una)*** 'spring of water' (PMC): KSR *unohn* 'spring, well'. KSR seems to correspond (with reduplication) to PPN **puna* 'bubble or well up (of water); a spring'. From this we can reconstruct POC or PEO **(b,p)una* 'spring, well'. PCM has **fura* 'spring' which corresponds irregularly to PMC and PPN in the second consonant. MC has the following non-cognate forms: MRS *hayébéj* 'rain water, a well, drinking water', PON *pwoarukus* 'spring of water', *pwarer* 'well, spring', CHK *misiwi*, *miror* 'spring (of water)', PUL *limerór* 'brackish water spring believed connected with the sea', CRL *bwatch* 'spring or other place fresh water surfaces'

Puluwatese seems to be related irregularly to Chuukese. Possibly KSR *unohn* 'spring of water' is related to: KIR *un* 'the principal or central root', MRS *win* 'base; basis; root; reason; purpose; cause; problem; arithmetic; motive; source; lower part of a tree, brush, or grass', MOK *win* 'tree sp.', CHK *wúún* 'aerial root of the mangrove; rope used to pull a tree in a desired direction when chopping it down; a vine (*Derris elliptica*) (it is used as a rope to haul logs and as fish poison) (*wúna-*)', PUL *wun* 'to be poisonous'. The forms, especially Kiribatese and Marshallese, seem related and there seems no potential Kosraen cognate other than that currently under discussion.

****wao*** 'valley' (PMC): PON *waaw* 'valley'

The form is not otherwise known in MC but is similar to KWA *wa'o* 'valley' which would have come from a PCM **waxo.* There are many words for 'valley' amongst the languages spoken on islands where valleys exist. The resemblance could be fortuitous and this is a very weak reconstruction. (See MC **malo* 'concaveness, depression, valley' in this section for discussion of 'valley' in the study languages.)

****zolo*** 'mountain, peak, pinnacle' (PMC): MRS *tel"* 'hill, mountain', KRS *ohl*, PNG *dol*, MOK *dol* 'mountain', PON *dool* 'small mountain, hill', PCK **solo* 'peak, pinnacle, tip (of mast, mountain, etc.)': MRT *tool* 'top of mast, peak, pinnacle', CHK *toon* 'peak, pinnacle; extension of a mast; visible, discernible, prominent', *toon* 'Ton island – highest peak (*tonen*

chuuk)', PUL *tolo-* 'top section of mast', STW *tool* 'height of sun', *tolo-* 'mountain', CRL *tool* 'objective, end; the time or height of the sun; the distance from one place to another', *tolo-* 'tip, end'. ***zolo*** '(v.i.) to disappear' (PWMC): MRS *tel"* '(Vi.) to disappear, die out, become extinct'; PCK **solo* '(Vi.) disappear from sight, esp. below horizon': CHK *ton* 'Vi., adj. (be) visible, discernible, viewed; prominent', *tononó* 'fade from being visible', *tonoto* 'become visible, become more visible', PUL *tol* 'to disappear', *tolo(l)* 'setting position (of stars)', *tolo(ló)* 'disappear, set', STW *tol* 'disappear from sight', CRL *tolo(ló)*, *tol(ló)* 'to disappear (in ref. to things crossing horizon)', *tolo(to)* 'to appear (in ref. to things crossing horizon)', WOL *tolo* 'to disappear, submerge, go out of sight, vanish, die away', ULI *dél* 'disappear'; ***lozo*** 'top of mast' (PMC): MRS *l"et* 'id.', KSR *loo* 'top, tip, apex (of a tree)', MOK *lod* 'id.', MRT *lou(ŋan)* 'top of something high', PUL *loot* 'top section of mast'

In PMC-B **lozo* is considered a metathesised form of **zolo*. The verb may have had more of the Chuukese sense of 'in and out of sight' and been disambiguated by use of the directionals. POC **solo* 'mountain, highlands, interior': PCM **tolo* 'mountainous interior', PCP **colo* 'inland country, mountain country'.

3.7 NAMED LAND (USE) AREAS

POC or Post-POC	PMC or Post-PMC	MC Gloss
**jalan*	**ala*	path, trail, road
	**maata*	clearing, open place
**mwalala*	**mala*	cleared area, to clear land
	**m'at'a*	garden, farm
**rata(R)*	**rata*	cleared land
	**tap'o*	village, place, land, spot
**qutan*	**uta*	interior, inland
	**walu*	forest, woods, bush area

ala 'path, trail, road' (PMC): MRS *(yi)yal*, PNG *al*, MOK *al*, PON *aal*, NGK *aal*, PCK **ala*: MRT, CHK *ana-*, PUL *yaal*, STW *yaan*, CRL *ala-*, WOL *yala*, ULI *yaal*, PUA *yaana*, SNS *yaara* 'id.'

PMC is assumed to have lost the initial consonant of POC even though Kiribatese and Kosraen cognates are unknown. Perhaps there was PMC **jala*. PAN **zalan* > POC **jalan* 'path, trail, road' > PCM **tala* 'path, road', PCP **zala* 'path, road'.

maata 'clearing, open place' (PMC): MRS *mahaj* 'cleared space, open field, pasture (and *mel'ahaj*)', KSR *mwes* 'shallow place in the reef', PCK **maata* 'farm, clearing', STW *maat* 'farm', CRL *maat* 'farm, fields, land cleared as farmstead', WOL *maata* 'farm, garden', PUA *maata* 'garden, property, taro patch', SNS *maat* 'garden'. The Kosraen semantics are distinct from the others but the form is phonologically regular and the reduplicated form below shows a clear semantic relation to the others; ***maataata*** 'clearing, open space' (PMC): KIR *maataata* 'cleared space', MRS *(ke)mahajhaj(ey)* 'to clear land (v.t.)', KSR *(ahk)mwesis(ye)* 'clean, cultivate, clear land', MOK *maajaaj* 'well kept, cleared, not overgrown', PON *maasaas* 'cleared of vegetation'

mala 'to clear, cleared area' (PMC): MRS *mel'a(haj)* 'open space, field, pasture, outdoors (also *mel'an* 'land surface, surroundings, environment')', KSR *(i)mac(i)* 'v.t. clear, farm, cultivate, n. a farm', MOK *mal* 'barren field', PCK **mala(si-i)* 'v.t. clear of brush': MRT *(lee)mal* 'land', *malete* 'v.t. clear land', PUL *máletiy* 'v.t. to clear, as a garden', STW *máleti* 'to clear brush', CRL *máletiy* 'to clear brush at the farm', WOL *malatii* 'clear it, remove obstacles'. KSR does not normally loose **l* but the semantic fit is good; ***malala*** 'cleared ground' (PWMC): MRS *mel'al'* 'id.', PON *mall* 'clearing, open grassy area', PCK **malaala* 'cleared ground': STW *melaal* 'id.', WOL *melaagú* 'field'. The third consonant of Woleaian and the vowel length of PCK are irregular; ***malemale*** (PCK) 'cleared area, to clear of brush', MRT *malamal* 'cleared land', CHK *(á)mámámáma* 'v.t. clear land of vegetation', *mánámán* 'n. place of habitation, inhabited place', PUL *málemál* 'to be clear of brush, clear space', CRL *málemál* 'to clear brush, to be cleared of brush', WOL *malemale* 'to be cleared, clear'

This form appears to have been reinterpreted in much of Chuukic as *male-*, probably due to vowel assimilations associated with the common transitive **malasi*. These forms would seem related to the POC **malala* 'cleared ground' reconstruction as well as PCM **lala* 'clear space, clear ground; public common'. It would appear there was PPN, PNP **malaqe* 'meeting place, village common' as well as PNP **maala* 'cultivated field' which is more similar to the present form.

m'at'a 'garden, farm' (PWMC): MRS *(je)m'ade(n)* 'wasteland', MOK *mwoas(wel)* 'vegetable garden', PON *mwaat* 'clearing, field, plantation, farm'

See MC **maata* above for which the evidence is pretty well in complementary distribution. There is a resemblance to CM-ARO *mwatake* 'clear, free of weeds' but no other similarity was encountered in the study languages.

rata 'cleared land, laid out area' (PMC): KIR *ata* 'width of land, material, mat, house, etc. (large)', PON *raas* 'place where an earth oven is made', PCK **rata* 'cleared land':, MRT *raas* 'cleared land', *rasa(n)* 'land for (modifier)', STW *raas* 'cleared land', WOL *rata* 'field, clear land'

The reconstructed meaning is somewhat biased towards PCK and compares with: PAN **dataR* 'level, flat' > POC **rata(R)* 'level, smooth' > PCM **dada* 'level, smooth'.

tap'o 'village, place, land, spot' (PCMC): KIR *tabo* 'place, spot, locality, position', MRS *jabe(n)* 'point of land, corner', MOK *japw* 'land, island', PON *saapw* 'land, farmstead, homestead', PCK **tap'o* 'village': MRT *sóópwu-*, CHK *sóópw*, *sópwú-*, PUL *hóópw*, STW *sóópw*, *sópwo-* 'village', CRL *sóóbw*, *sóbwo-*, WOL *tabo-*, *sabo* 'village, district'

The form is homophonous with PMC **tap'o* 'end, part, half, extremity'. No certain external cognates were encountered.

uta 'interior of an island, inland' (PMC): MRS *(yiyé)wéj* 'interior of an island', KSR *wuct* 'inland, towards inland', MOK *(e)wij* 'inland' (presumably, the Mokilese is a Marshallese loan, cf. Rehg & Bender 1990); PAN **qutan* > POC **quta(n)* 'inland' > PCM **uta* 'pith or heart of something', PCP **'uta*: PPN **quta* 'inland'

walu 'forest, woods, bush area' (PPCK): PNG *wael* 'forest, woods', MOK *woal* 'forest', PON *waal* 'forest, jungle', PCK **walú* 'forest, woods, bush': CHK *wénú-* 'bush, vegetation generally)', PUL *waali-* 'forest, jungle', WOL *walú* 'forest, bush, woods'. ***waluwalu*** (PCK) 'forest, woods, bushy area': MRT *waliwel* 'forest', CHK *wénúwén*

'vegetation, uncultivated bush; to be overgrown', PUL *walúwal* 'plant, tree, forest; to be forested', STW *waniwan* 'plant, forest', CRL *walúwal* 'forest, wild land', ULI *waluwal* 'forest, plant, bush', PUA *wonuwonu* 'forest, bush'

The evidence is exclusively from Pohnpeic-Chuukic. It would appear that the reduplicated form became the common usage through Chuukic at about the time of PCK itself. (See MC **uta* below for comparison to PAN **quta(n)* > POC **quta* 'forest'.)

3.8 DIRECTIONS

POC or Post-POC	PMC or Post-PMC	MC gloss
**ara*	**ara*	south
**atas*	**ata*	up, high, top, summit, east
**auru*	**auru*	south
	**faŋi*	north
	**losowa*	west
**sake*	**sake*	up(wards), east(wards)
**sipo*	**sio*	down(wards), west(wards)

****ara*** 'south' (PMC): MRT *-ar*, STW *-ar*, WOL *-ara*, PUA *-ala* 'id.'

This would be PCK at best but external evidence is seen in: PCM **ara* 'south wind'. In MC the form occurs in compounds meaning 'south-west' (see MC **losowa* in this section). Possibly the PCM is from POC **apaRa* 'NW monsoon'; see MC **para(ta)* 'tradewind' in section 3.2).

****ata*** 'up, high, top, summit, east' (PMC): KIR *eta* 'up, on high, above, top, upper, heavens', KSR *yat* 'eastern part of a village', PCK **ata* 'top, up, on land, east': MRT *(yéérú-nee)yas* 'SSE wind', CHK *asa-*, PUL *(ye)yah* 'to be easterly', STW *(yéérú-lee)yas* 'SSE wind', *yat* 'up, top', CRL *-as* 'up, high (in cmpds)', WOL *-yasa* 'up, upside', *yat* 'up, top', ULI *yat*, PUA *-yasa* 'up'; PAN and POC **atas* 'top, above' > WAY *ata* 'top, above, the top', PPN **ata* 'dawn'

****auru*** 'south' (PMC): KSR *acir* 'north', PNG *(pali)eir*, *(pali)aeir*, PON *(pali)eir*, PCK **aurú*, PUL *yéér* 'at the south, to be the south wind', STW *yéér*, CRL *éér*, WOL *(i)yeúrú*, ULI *(i)ér* 'south'

This seems a cognate of PCM **auru* 'west': ARO *auru* 'west, down, the west', *uru* 'the west'. I reconstruct PMC 'south' in spite of the Kosraen evidence due to the proposed contrast with PWMC **faŋi* 'north'. I reconstruct PCM 'west' simply on the basis of Arosi. If external cognates outside CM are not identified, this could be taken as support for Blust's (1984b) suggestion of a CM-MC subgroup. Wayan Fijian has *aaulu* 'to face in a certain direction' but it has a long initial vowel and reflects POC **l* rather than **r*.

****faŋi*** 'north' (PCMC): KIR *(me)aaŋi* 'north wind (Goodenough)', MRS *yagi-* 'north', KSR *(e)paŋ* 'south', PON *(e)peŋ*, PCK **(e)faŋi*: MRT *efé ŋé-*, CHK *efeŋ*, PUL *yefáŋ*, STW *effáŋ*, CRL *efáŋ*, WOL *-faŋi*, ULI *(yi)faŋ*, PUA *(ie)daŋi*, SNS *(yiye)faŋi* 'north'

The Kosraen retention of **f* and its initial vowel increment suggest a loan from Pohnpeic or Chuukic (Jackson 1983:329-330). (See MC **faŋi* 'dry season, winter' in section 3.2.) External cognates are not presently known.

losowa 'west' (PMC): KSR *rohtoh*, PCK **losowa*, MRT *lotowa-*, CHK *notow*, PUL *lotow*, STW *lotow*, WOL *letowa*, ULI *lodow*, PUA *(i)notoa* 'west'

Kosraean typically reflects PMC **l* as *l* and has a tendancy to reflect PMC **r* as *l* as well. Thus this is an unusual agreement for which we have no loan hypothesis. The form was not encountered outside MC. (See MC **sio* 'down(wards), west(wards)' in this section.)

sake 'up(wards), east(wards)' (PMC): KIR *rake* 'upwards, eastwards', MRS *tak* 'upward, eastward', CHK *-tá* 'upward, eastward', PUL *-tá* 'up, east', CRL *-tá* 'upwards, northwards', WOL *tage*, ULI *dag* 'upward, eastward', PUA *-take* 'up, north'. PAN **sakaj* 'climb' > POC **sake* 'up above, go up' > PCM **taxe* 'ascend, rise', PCP **cake* 'upwards'

sio 'down(wards), west(wards)' (PMC): KIR *rio* 'lower or west side, down', MRS *téw* 'climb down, disembark', KSR *te(n)* 'down the beach', PNG *-di*, MOK *-di*, PON *-di* 'downwards', PCK **sio* 'downward, downwind, west': MRT *-téw* 'id.', CHK *-tiw* 'down, west, westward', PUL *-tiw* 'down, west', STW *-tiw* 'down', CRL *-tiw* 'downwards, downwind', WOL *-tiwe* 'down(wards)', ULI *-diy* 'id.', PUA *-ti* 'downward, west'; PMP **t'ibt'ib* 'slide off' > POC **sisi(p)* 'go down, to land, west' > PCM **sifo* 'down, go down'

3.9 MISCELLANEOUS

OC	MC	MC Gloss
**qasu*	**asu*	smoke
	**falaŋa*	ashes
**lubwa*	**lip'a*	hole in ground, pit, excavation, grave
**maluRu*	**luru*	shade
**nunu*	**ŋenu*	shadow
	**peata*	ashes, hearth
	**p'u(rako)*	smoke, dust, powder, fog

asu 'smoke' (PMC): MRS *hatiy(tiy)*, *(ba)(hat)hat* 'to smoke dry', PON *adi-* 'vapour, smoke, mist', NGK *edi(niei)*, PCK **asú*, MRT *yet*, CHK *étú-*, PUL *yaat*, STW *yatú-* 'smoke', CRL *áti(yát)* 'smoke', WOL *(gera)atí* 'smoke'. PAN **qasu* > POC **qasu* > PCM **sasu*, PCP **qasu* 'smoke' > PPN **qasu* 'smoke' (POC **qa-* often > CM *sa-*, KWA *la-*)

falaŋa 'ashes(?), dry s.t.(?)' (PPCK): MOK *palaŋ* 'dry (tr), *poaloaŋ* (intr), PON *palaŋ* 'dry in the sun (tr), *peleŋ* 'dry in the sun (intr)', PCK **falaŋa* 'hearth ashes': MRT *falaŋ* 'cookhouse, underground oven', CHK *fanaŋa-* 'ashes, dust', PUL *falaŋa-* 'ashes, cinders', CRL *falaŋ* 'ashes, charcoal, charred wood', WOL *falaŋa* 'ashes, fireplace', ULI *falaŋ* 'fireplace, ashes', STW *felaŋ*, PUA *danaŋa*, SNS *faraŋ* 'ashes'

The form reconstructs only to PPCK and its meaning at that level is uncertain. (See MC **peata* 'ashes' for external comparisons.)

lip'a 'hole in the ground, pit, excavation' (PMC): KIR *nib'a* 'small hollow in soil, small trench, notch, cut', MRS *léb* 'grave, tomb', KSR *luhf* 'hole', PNG *lipw* 'hole', MOK *lipw* 'hole, crater, scar', PON *liipw* 'large hole in the ground', PCK **lip'a* 'hole, grave, pit': MRT *liipw* 'grave, hole', CHK *nipwa-* 'pit for soaking coconut husks', PUL *lipwa-* 'pool where green coconut fibres are soaked', STW *liipw* 'hole', CRL *libwa-* 'grave, hole, excavation', WOL *liba* 'hole', ULI *liib* 'hole', PUA *nipwa* 'hole, to bury'. PAN **lubaŋ* 'hole, pit, grave, mine'

Possibly there is a CM cognate in LAU *likwa* 'a hole, cavity in a tree'.

luru 'shade' (PMC): KIR *nuu* 'shade, shadow, outline', MRS *lir"* 'shade', KSR *lul* 'shade, shadow', MOK *rir* 'shaded', PCK **nurú* 'shade': MRT *núr* 'shade', CHK *(n)núr* 'be shaded, shady', PUL *néér* 'shade', CRL *(l)lur* 'shaded, be shady', WOL *(n)núr* 'shady, shaded', PUA *rúlú* 'shade, shelter' (PCK irregularly saw PMC **l* > *n*. The PUL vowel is irregular.) PEMP **maluRu* > POC **maluRu* 'shade' > PCM **malu* 'shade', PCP **malu* 'shade'

ŋenu 'shadow; ghost, spirit (in the sense of a physical manifestation/apparition)' (PMC): KSR *ŋun* 'spirit', PNG *(ŋene)ŋen* 'shadow', MOK *ŋen, ŋeni-* 'spirit, soul', PON *ŋeen, ŋeni-* 'soul, spirit, shadow', PCK **ŋenú* 'shadow, ghost, spirit', MRT *ŋéén, ŋénú-* 'shadow, ghost, spirit', CHK *ŋúún* 'soul, spirit of a person', PUL *ŋúnú-* 'soul, spirit', STW *ŋéén, ŋénú-* 'shadow, ghost, spirit', CRL *ŋéél, ŋélú-* 'shadow', WOL *ŋelú* 'picture, image, ghost', ULI *ŋélu-* 'soul, image', PUA *nulú* 'shadow'

Possibly a variation of: POC **nunu* 'shadow, reflection' > PCM **nunu* 'shadow, shade'.

peata 'ashes, hearth' (PMC): MRS *(wi)pahaj* 'fireplace, ashes', KSR *(a)pact*, PNG *paeaes* 'ashes', MOK *poaoaj* 'hearth, cooking area', PON *pees*, NGK *pees* 'ashes', PCK **peata* 'hearth ashes': MRT *peyás* 'ashes (from fireplace)', PUL *peyah* 'ashes', WOL *peyasa* 'ashes (archaic)'

p'u(rako) 'smoke' (PCMC): KIR *(bu)bu* 'smoke, dust, powder, fog', PCK **p'urako* 'smoke': PUL *p'urók* 'to emit smoke', STW *pwurók*, CRL *bwuróógh*, WOL *buraago-*, ULI *borag*, PUA *pwuloko*, SNS *bwulogo* 'smoke'

(See MC **asu* 'smoke' in this section.)

4. CONCLUSIONS

In the foregoing etymologies we can generally observe that the more minimal the semantic concept, the less likely was change. Extremely basic concepts such as 'night', 'day', 'sky' and 'sea' changed hardly at all. Addition of complexity in the semantic notion generally decreased the historical stability of the associated words. Thus 'darkness of night' was more stable than 'sun' or 'moon', because the latter were sources which emitted something (i.e. light). The noun for the source was occasionally confused with the noun for the light it emitted or verbs for its shining.

Perhaps 'sea water' had more stable etymologies than 'sea, ocean' because the former was a basic, universal notion while the latter meant different things to people in different geographical situations. And 'sea water' may have had more stable etymologies than 'fresh water' because of the former having a single invariable source, the latter having many (rain, rivers, wells, puddles) each with its own characteristics. Distinctness and minimalness of semantic notion are characteristics of the more stable forms.

A second source of variation was certainly the commonness of the referent. 'Wind' and 'rain' were profoundly conservative compared to 'typhoon' and 'waterspout' etymologies. Even 'rainbow' had a great variety of forms through the study languages.

A third source of variation was a dimension best characterised as 'usefulness'. Thus 'low tide' had a single etymology through most of the study languages while 'high tide' was extremely diverse, the former being a time of fishing and gathering, the latter being a time of

marginal economic utility. Low tide is also commonly a distinct moment while high tide is not. During low tide the whole lagoon can go dead still for about an hour while the high tide is marked by an irregular pounding surf whose height varies through a longer period of time according to wind and changes in the source wave pattern in addition to the general height of the sea and whether it is still coming in or has started to go out.

Another phenomenon encountered was absorption of an extensive semantic complex by one word from another. This was apparently the case in relation to POC **wai(r)* and **dranum* which must both be reconstructed generally as 'fresh water'. For both PMC **t'anu* and PCM and PCP **wai* we can reconstruct an extensive set of subsidiary meanings including 'liquid, fluid, moisture, sap, juice, liquid discharge from the body'. In PCM the POC **dranum* word seems to have concerned moving water about (e.g. 'bailing') and in PCP it had to do with rinsing salt from the body and the water used for that purpose. Whether PMC or PCM and PCP innovated cannot be suggested with any certainty from the present study, but it seems that one took the whole semantic complex of the other.

To discuss what we might learn about Micronesian culture history, we might first consider the internal development of PMC **sakau* 'reef, shoal, reef island'. The form has similar meanings externally but within MC it came to mean '(small) island' in Chuukic and is the principal word for 'island, atoll' in Kosraen and Pohnpeic. This is otherwise unknown for the study languages and apparently reflects the extension of the older 'reef' meaning to atolls (reef islands) and then to high islands in Kosraean and Pohnpeic (apparently after the departure of the Pre-Chuukese who retained the 'reef, reef island' sense and still called 'land, island' by reflexes of PMC **fanua*).

The comparison of high island (versus atoll) referent vocabularies (section 3.6) turned out to be quite interesting. Micronesianists (e.g. Bender et al. 1990) have long been aware of the PMC **zolo* 'mountain, peak, pinnacle' etymology and wondered why such terms as 'valley', 'stream, river', 'cliff' and other high island referents could not be reconstructed to PMC. We wondered if PMC was spoken on atolls and if PMC **zolo* (which continues POC **solo* 'mountains, highlands, interior') may simply have been remembered in chants or other oral literature and been reapplied to their own environment once high islands were discovered.

The problem was compounded by the possibility of the verbal sense of **zolo* having existed in PMC as it does in many living languages. The verb normally has a sense of 'things breaking the horizon at sea' and could easily have been reapplied as a noun to the first thing breaking the horizon on a high island. Additionally, there is an apparent metathesised form reconstructable to PMC **lozo* 'top of mast'. As the single high island referent reconstructable to PMC it presented several layers of problems in interpretation.

The present work has established that neither PCM nor PCP allow for much in the way of reconstructing etyma concerning the interior, relief and their features. Where evidence is available, the archaeology of the time period concerned[2] describes coastal populations not terribly interested in settling island interiors. So the phenomenon we have long observed for PMC turns out to be somewhat true for PCM and PCP as well: languages of that general age seem not to have well-established terminologies for the interior physiographic phenomena we were wondering about for PMC.

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2 PCP and PMC were apparently breaking apart in the early first millenium BC. The disintegration of PCM may have been somewhat later or may have proceeded more slowly.

The situation differed in PPN. Quite a variety of high island terms are reconstructable for that language and have continued very broadly into the living languages (Pawley & K. Green 1971; Biggs n.d.). I would suggest that the interiors of islands had come to mean more to the PPN speakers than they did to speakers of PCP or PCM. I would therefore suggest that our dearth of PMC etyma with high island physiographic referents is less significant than we have long suspected.

Another finding of the present study is that MC languages have a previously unrecognised cognate in this domain in the agreement of KSR *unohn* 'spring, well' with PPN **puna* 'spring, well'. There are horizontal seepage wells dug into the freshwater lenses of atolls but there are no springs and no Micronesian atoll language uses a cognate of the present form to name their seepage wells.

Thus the results of the present work both expand the reconstruction of high island referents for PMC to two and relieve us of some pressure to keep producing more. It seems we now have gone from an ambiguous situation with the linguistic evidence slightly favouring an atoll homeland or atoll filter on the way to the homeland to a situation where we are developing reason to believe high islands were at least part of the overall environment where PMC or its dialects were spoken, and that they applied at least some POC terms to high island features.

We need to look at plants, continuities in their vocabularies and which plants cannot be grown on atolls. But that is work for another day. For the moment we can note that POC terms for 'fruit bat' (POC **beka* > PMC **p'eka*) and 'freshwater eel' (POC **tuna* > PMC **tuna*) appear to have continued into PMC. These two faunal species are fairly well restricted to high island environments. Pohnpeian does not continue the POC terms for 'spring of fresh water' or 'freshwater eel' as does Kosraen, even though both exist on Pohnpei. The freshwater eel is an object of religious significance on Pohnpei. Its name could have been changed by speech taboos or other social behaviour over the years.

We might also note the lack of PAN **danaw* > POC **dano* 'lake' cognates in MC. There are no lakes where MC languages were spoken at the time of European contact and MC cognates extended to other parts of the environment have not been identified. Similarly, reflexes of POC **wair* 'stream, river' are not presently known in MC. Pohnpei has substantial streams or rivers but Kosrae and Chuuk do not.

Green (1981, 1987) has argued that PPN was spoken over a large area including at least Tonga and Samoa. Kosrae is a tougher voyage to or from the Marshall Islands/Kiribati than voyages around the Tonga/Samoa area. A continuous language through the Kosrae-Pingelap-Mokil-Pohnpei area would be more plausible in terms of geography and voyaging. But the linguistic evidence does not support such a scenario as it relates to maintenance of a single language. Kosraean and Pohnpeian seem to have no special relationship within MC except through borrowing.

Whatever geographical spread PMC attained before it began to break down, it now seems more likely that the speakers knew of a high island such as Kosrae or Pohnpei, that some of the speakers resided on one of them and that they remembered and applied some POC terms to its physiographic features and fauna. The most simple explanation for the continuation of POC terms into PMC would be that a high island was first encountered or was encountered soon after the discovery of eastern Micronesia. But this is not the only possible scenario. The terms could have been retained in the cultural memory on atolls and applied to high island

referents upon re-encountering them. It is also possible that the terms could have been forgotten in Pre-Micronesian but reintroduced through continuing immigration from Melanesia.

This review of terminologies for the physical environment produced supporting evidence for Blust's (1984b) suggestion of a special relationship between CM and MC. That evidence can be seen in the discussions of PMC **alo* 'sun' in section 3.1, **nanoa* 'yesterday' in section 3.3, **p'aro* 'flat underwater rock' in section 3.5 and **ara* 'south' as well as **auru* 'south' in section 3.8. Some of it may need to be dismissed upon wider comparison with OC languages not considered in the present work but the apparent phonological, morphophonemic and semantic innovations shared are of the same general type utilised in defining other OC subgroups.

A thorough study of MC plant names and their internal and external relations would be the next logical comparative linguistic project in a continuing research program for Micronesia. And the behaviour of MC terms should be compared to CM and CP or some other well-documented control groups. A striking finding in the present work was the similarity in behaviours for vocabularies at the PCM and PCP levels to PMC with respect to high island referent terminologies. Possibly there will be unexpected results in a thorough plant name study as well.

Marck, J. "Proto Micronesian terms for the physical environment". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*.
C-127:301-328. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.301*

EARLY AUSTRONESIAN TERMS FOR CANOE PARTS AND SEAFARING

ANDREW PAWLEY AND MEDINA PAWLEY

1. INTRODUCTION

1.1 QUESTIONS

Between 3000 and 1000 BC speakers of Austronesian (AN) languages spread across Island Southeast Asia and western Melanesia and into the previously uninhabited islands of the Central Pacific.[1] By about 1000 AD they had colonised the whole of Polynesia and Micronesia and had settled Madagascar, more than half a world away.[2] This far-flung maritime dispersal of closely related peoples, without parallel in human history until the Western European expansion of the fifteenth to twentieth centuries AD, must have been based on a fairly efficient sailing technology. What was this technology? When and where did it develop? To what extent was it modified during the AN diaspora?

There is already an extensive literature on these questions, much of it by culture historians who apply the typological comparative and distributional methods (discussed in section 1.2) to sailing craft and sailing techniques. Our contribution will be to see what light can be thrown on these questions by comparing the vocabulary for watercraft and seafaring across the AN family, using the genetic comparative method of historical linguistics. We will focus on the early phases of AN expansion, that is, on cognate sets that probably go back more than 2,000 years. Little will be said here about the complex developments in boat-building which have taken place in Island Southeast Asia over the last couple of millenia, well after the main AN dispersal across and beyond this region, or about modifications in the design of craft that, according to Haddon and Hornell (1936-38), have taken place in various regions of Oceania within the last millenium. An exhaustive study of material relevant to reconstructing terms for vessel design and seafaring at all stages in the history of the AN family would take several years and fill a very large book.

1.2 RECONSTRUCTIONS BASED ON COMPARATIVE TYPOLOGY: METHODOLOGICAL PROBLEMS

Describing the sailing craft and navigation techniques in the Indo-Pacific region, and theorising about their origins and development have been popular pastimes among Western

1 We are grateful to many colleagues for help. Robert Blust, Charles Grimes, Ric Jackson, Jeff Marck and Bernd Nothofer provided corrections to many points of detail as well as additional evidence. Sander Adelaar, Wal Ambrose, Mark Donohue, Paul Geraghty, Geoff Irwin, Alan Jones, Nigel Oram, Lawrence Reid and Malcolm Ross also offered valuable comments or data.

2 See, for example, Shutler and Marck (1975), Bellwood (1978, 1988), Pawley and Green (1973, 1984), Spriggs (1984, 1989, 1990) for discussion of the dating of the AN diaspora, using C14 dating of archaeological assemblages that can be associated with AN speakers.

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 329-361.
Pacific Linguistics, C-127, 1994.

scholars since the first European explorers visited the region.[3] The fairly close correlation between the distribution of outrigger canoes and that of the AN language family has not escaped the attention of culture historians.

Those writers who have drawn conclusions about the nature of early Austronesian sailing craft and navigation have generally relied on the 'typological comparative method' of historical reconstruction. The typological method is a theory of structural types, making assumptions about how structural features are linked in systems, what kinds of changes are possible or likely, which types are logically prior to others, etc. The kinds of historical inferences this method can give, when applied to a range of contemporary systems, are probabilistic ones: for example, the inference that type X is more likely to have given rise to type Y than vice versa. The typological method is often allied to a distributional one. The assumption is that one can infer much about the antiquity of a given structural type or feature from its geographic distribution. For instance, the observation that a certain complex of cultural features is found among widely scattered peoples speaking related languages can be taken as evidence that the complex was present in a common ancestral culture. On the other hand, if such a complex has a more restricted but continuous geographic distribution it is likely to have been an innovation that diffused over this region after the dispersal of the ancestral population.

In his *Sailing craft of Indonesia* (1986) Adrian Horridge employs a distributional argument when he writes:

> The very wide distribution of their homogeneous cultural heritage shows that [the ancestral Malayo-Polynesians][4] had an excellent knowledge of outrigger canoes for transporting fire, family, pigs, chickens and dogs, not to mention dozens of useful plants, by sea. (pp.2-3)

Other passages in the same book present some fairly detailed conclusions about the design of the vessels. These are based partly on the logic of technology – what is possible and what is likely in the development of techniques, given certain equipment and natural resources, engineering knowledge, navigational knowledge, climatic conditions, etc. – and partly on distributional grounds.

> The signs are that the original Malayo-Polynesian rig was a two-boom triangular sail fixed by the point (tack) in the bows of the boat and held up by a loose prop, with a rope to the outriggers to prevent it falling sideways. (p.56)
>
> All Malayo-Polynesian rigs therefore had the fundamental property that the sail could be tilted fore and aft to balance the sail with reference to the balance of the hull and load on the steering paddle. In principle they could all be steered like a windsurfer, simply by tilting the sail fore and aft. These rigs, like the outrigger canoes for which they were adapted, were invented in Island South-East Asia,

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3 Among the scores of twentieth century works on these subjects are Best (1923, 1925a), Doran (1981), Finney (1979a,b), Friederici (1933), Gladwin (1970), Golson (1963), Haddon (1937), Hornell (1936), Haddon and Hornell (1938), Horridge (1978, 1981, 1986), Hutchins (1983), Irwin (1989, 1992), Lewis (1972), Siers (1977), Sharp (1956) and Thomas (1987).

4 Horridge recognises the distinction that linguists now usually make between 'Austronesian', as the name of the entire language family, and 'Malayo-Polynesian', as the name for a putative subgroup that includes all Austronesian languages except those of Formosa.

> and spread with the Malayo-Polynesian expansion, although they may have been known in Indonesia before that time. (p.58)
>
> The idea of a boat built from sewn planks was known to the Polynesian migrants into the Pacific, and perhaps came from mainland Asia before 5000 BC, but the idea of fixing the planks edge-to-edge with dowels seems to have spread later from the mainland, with the same distribution as the use of metal for boat-building tools... All the techniques needed to make a lashed-lug boat, sewn of course, were known to the earliest Polynesians, and the projecting lugs carved *in situ* are a feature of many traditional Polynesian, Micronesian and Melanesian boats. (pp.57-58)

In the following passage, Horridge combines structural and distributional arguments with archaeological evidence:

> The earliest evidence of trading by boats that could beat against the wind is provided by pottery with a particular design, known as Lapita, that spread rapidly from Western Melanesia far into what is now Polynesia about 3000 years ago. The vessels carrying the potters were probably double canoes because nothing else in the region is sufficiently seaworthy. (p.4)

The strength of technology-based comparative studies is in the detailed historical inferences concerning design and construction which they yield. That is not to say such inferences are necessarily reliable. There are some serious methological weaknesses associated with all reconstructions based purely on the logic of types and the distributional method.

Because innovations in material culture sometimes spread and replace older usages and because some innovations are made independently in different places, the widespread geographic distribution of a feature or even a complex of features does not guarantee its great antiquity. Nor does the restricted distribution of a feature guarantee that it is a recent innovation. The method of comparative typology is unable to distinguish in a reliable way between 'inherited' and 'borrowed' elements or features within a continuing community or cultural tradition, that is, between institutions which have been handed down from generation to generation within the community or tradition since a given point in time and institutions that have entered the tradition from outside since that point in time. The method is also unable to distinguish reliably between 'retentions' and 'innovations' within the same tradition, that is, between features that have been part of a tradition since a given point in time and those that were developed later.

In Indonesia and contiguous regions of Island Southeast Asia the problems of distinguishing retentions, innovations and borrowings in sailing technology are particularly acute. There the local sailing traditions of AN-speaking communities have not only diversified and influenced one another but have been exposed to numerous alien traditions coming from mainland Asia. Horridge acknowledges this point:

> The Malayo-Polynesians diversified as they spread, and from them are descended the specialized boat-building and boat-loving maritime groups of Indonesia, namely the Bajau or Sea Gypsies, the Buginese from the Gulf of Bone, the Makassarese, the Mandar people from West Sulawesi, and the Butungese from South-east Sulawesi, and the Madurese...[and] the fishermen of

> the islands of Bawean, Masalembu and Sepudi in the Java Sea, the traders of Bonerate and Pulau Palu'e in the Flores Sea, the whalers of Lamalerap on Lomblen in the Timor Straits, the men of Luang in the Barat Daya Islands, and the numerous Buginese colonies which control a wide network of trade in miscellaneous goods. All these very diverse groups have inherited the Malayo-Polynesian seafaring tradition, and methods of building outrigger canoes *which over the past two millenia have been mixed with traditions from the Indian Ocean and the West to give the modern hotch-potch of boat and canoe styles.* (pp.3-4; italics ours, AP & MP)

Horridge's remarks remind us that the testimony of central Pacific cultures is likely to be crucial in reconstructing early AN sailing technology. The relative isolation of the peoples of the more remote Pacific islands may have allowed some of them to continue the early AN sailing culture with fewer changes than most peoples in Island Southeast Asia.

A problem arises when students of comparative technology dabble in comparative linguistics without underpinning them by the careful studies of sound correspondences and subgroupings needed to distinguish between cognates, accidental resemblances and borrowings or to determine the relative chronology of linguistic innovations. The results of such dabblings will be largely worthless. Haddon and Hornell's (1936-38) admirable survey, *Canoes of Oceania*, is marred by a number of fanciful historical speculations which rest in part on naive readings of linguistic similarities. To a much larger extent, however, their fanciful historical inferences rest on a diffusionist interpretation of the comparative material culture uninformed by systematic study of comparative vocabulary or by archaeological evidence.

1.3 THE GENETIC COMPARATIVE METHOD

There is a means of escape from the limitations of comparative typology. It is the special virtue of the comparative or genetic method of historical linguistics that it can, in principle, (a) define genetic continuity in certain parts of the vocabulary of each language in a language family, distinguishing resemblances due to common origin from resemblances due to borrowing, and (b) assign a relative chronology to innovations occurring within the languages of a linguistic family.[5]

The power of the genetic comparative method is based on three facts of language design, all connected with its sound system. Firstly, each morpheme or minimal form-meaning pairing in a language (such as the English nouns *canoe*, *rudder* and *sail*) consists of one or more sound segments which themselves have no meaning. Secondly, the association of particular meanings with particular minimal linguistic forms (pronunciations) in a language is in almost all cases, wholly or largely *arbitrary*. Contrast this with items of material culture, where the connection between the function of an artefact and its form is, as a rule, non-arbitrary. Thirdly, in all well-defined speech traditions (languages or dialects) changes in the

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5 It should be stressed that the genetic comparative method is not a discovery procedure that automatically yields correct interpretations of linguistic comparisons. There are invariably ambiguities in the evidence that require choice between two or more hypotheses. The method works best when (a) the number of putative cognate sets is large, (b) the witnesses (languages compared) have had little or no contact for a long time, (c) the number of such independent witnesses in the family is large, and (d) the witnesses at each level fall into more than two subgroups.

sound system occur over time and these sound changes are, typically, regular or non-random. That is to say, the pronunciation of words in a speech community tends to change in a systematic way, such that sound *x* will change to sound *y* under definable phonological conditions not just in one word but in all words that meet those conditions. (Later historical events may overlay and even obscure particular original sound changes but often the original changes can be reconstructed.)

Taken together these three facts allow us to identify languages that are genetically related and to identify cognates (genetically related morphemes) shared by sister languages, as opposed to borrowed words and chance resemblances. Given a reasonable number of cognate sets (ideally at least several hundred) the method also allows us to reconstruct, approximately, the sound systems and forms of words at earlier stages in the history of a language family and to work out a relative chronology of innovations that indicate a family tree or subgrouping for the family.

However, linguists need not feel unduly smug about the genetic comparative method. It applies only to a restricted part of each language-culture system, namely the stock of morphemes that have cognates in genetically related languages. Often it happens that linguistics is silent in the face of competing hypotheses derived from comparative technology, say, about techniques of manufacture, because no distinctive terms can be reconstructed for the technological elements in question. And while the genetic method often allows us to make strong inferences about the *presence* of some things in a reconstructed language-culture system, it does not tell us what was *absent*. That is to say, our inability to reconstruct a term for a particular element in protolanguage L is not conclusive proof that speakers of L lacked a term for that element. Within these limitations, the genetic comparative method remains a powerful tool.

1.4 Notes on Lexical Sources and Austronesian Subgrouping

Many previous publications isolate AN cognate sets referring to canoe parts and seafaring. However, works compiled by linguists only list such cognate sets as isolated items within a larger body of semantically unordered material. This paper draws together published comparisons and extends them. Sources giving relevant cognate sets or sound correspondences relevant to determining cognation include Bender et al. (1990), Biggs (1978, n.d.),[6] Blust (1970, 1972c, 1976a, 1978a, 1978b, 1980a, 1983-84a, 1986, 1989a), Clark (n.d.), Collins (1983), Dahl (1976), Dempwolff (1938), Ferrell (1969), Geraghty (1983), Jackson (1983), Milke (1961, 1968), Palleson (1985), Pawley (1972), Reid (1971), Ross (1988), Sneddon (1984) and Tryon (1976b). We have also consulted dictionaries of many contemporary languages.

Subgrouping hypotheses are central to lexical reconstruction. The level to which a reconstruction from a cognate set can be attributed depends in the first place on which subgroups or branches of the family tree the cognates are found in. The high-order subgroupings of the 1,000 or so AN languages remain somewhat controversial. Here we follow, as a reasonable working hypothesis, the groupings proposed by Blust (1977a, 1978a, 1982a, 1983-84a, 1992b). Like Dahl (1976), Blust regards the primary split in AN as dividing the Formosan languages from a Malayo-Polynesian (MP) group, which

6 The 1990 Pollex printout was used in this paper.

comprises all non-Formosan languages. Blust classifies the Malayo-Polynesian branch into two first-order groups: (a) Western Malayo-Polynesian (WMP) and (b) Central and Eastern Malayo-Polynesian (CEMP). WMP comprises upwards of 300 languages distributed over the Philippines, Malaysia and small parts of mainland Southeast Asia, and over western and central Indonesia.

Blust divides CEMP into two primary branches: Central Malayo-Polynesian (CMP) and Eastern Malayo-Polynesian (EMP). CMP is located in eastern Indonesia and comprises the languages of the Flores Islands east of Bima-Sumba and of the Moluccas and comprises around 150 languages. EMP is much larger and more widespread, with around 500 members extending from eastern Indonesia to the eastern Pacific. EMP has two primary subgroups. There is a small group South Halmahera-West New Guinea (SHWNG) group consisting of the 40 or so AN languages spoken in Halmahera and around Cenderawasih Bay on the Bird's Head of New Guinea. Its sister subgroup is Oceanic (OC). To Oceanic belong all the AN languages of Melanesia other than those which fall into SHWNG, the Polynesian languages and all the languages of Micronesia excepting Chamorro, Belauan and possibly Yapese.

Blust's subgrouping is summarised in Figure 1.

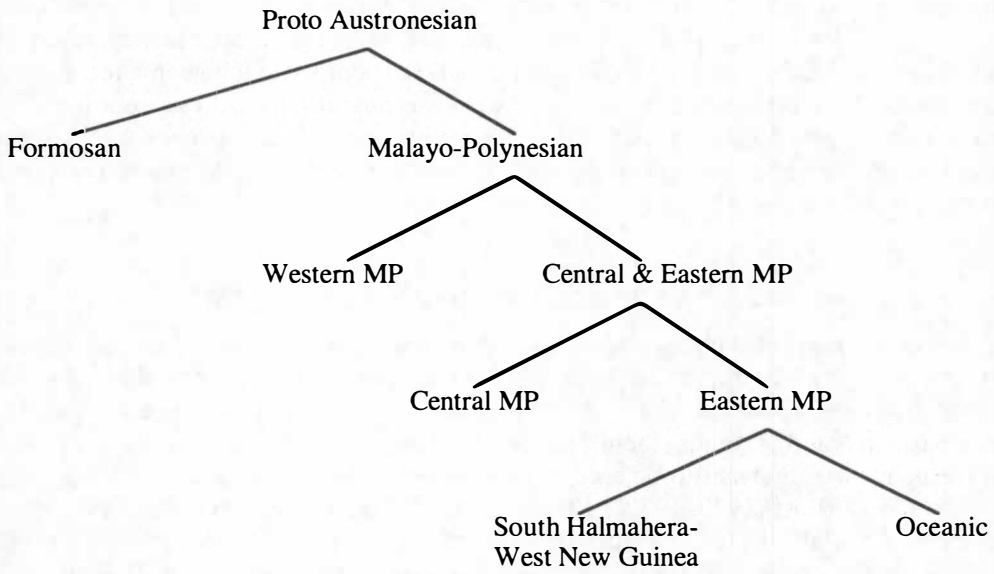

FIGURE 1: THE HIGHER ORDER SUBGROUPS OF AUSTRONESIAN (after Blust)

The most strongly supported of the subgroups mentioned above are Eastern Malayo-Polynesian and its two primary branches: South Halmahera-West New Guinea and Oceanic. The others rest on weaker evidence. For an etymon to be attributed to a given stage, call it Proto X, it is crucial that the etymon at least be reflected by cognates in (i) two primary subgroups of X, or (ii) one primary subgroup of X and one external witness – a language in the family that does not belong to X. In addition, (iii) the conditions should be such that borrowing is an unlikely explanation for the distribution. For instance, to be attributed to PMP, an etymon needs to be represented at least in (a) a WMP language and a CEMP language or (b) a MP language and a non-MP (i.e. Formosan) language. If (a), the case for

the reconstruction is strongest if the CEMP witness is Oceanic, because of its geographic remoteness from WMP. If (b), the case is strongest if the MP witness is geographically distant from Formosa.

Within each of the higher order groups named in Figure 1, a number of lower order branches have been posited. Although scholars are by no means agreed on all the details, the following groups seem fairly well supported (Bender 1971, Blust 1978b, Geraghty 1983, 1986, Haudricourt 1971, Pawley 1972, Ross 1988).

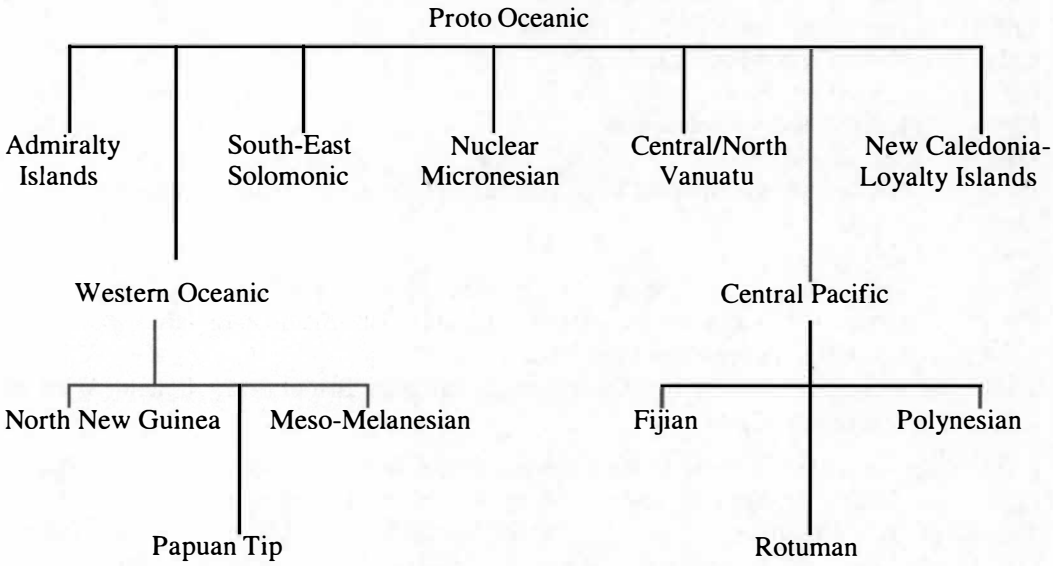

FIGURE 2: A PARTIAL SUBGROUPING OF OCEANIC LANGUAGES

In this study the Oceanic subgroup, and in particular, Central Pacific languages have been given better coverage than other AN subgroups partly because we have had access to fuller data in these cases and partly because we are more familiar with the languages.

1.5 ORGANISATION OF RECONSTRUCTIONS AND COGNATE SETS

Some 50 cognate sets will be discussed. These are ordered by semantic domains, beginning with types of vessels and hull construction and going on to outrigger structure, superstructure, sail and rigging, accessories, launching, beaching and anchoring and ending with terms for seafaring and seafarers. Each set of cognates or putative cognates is grouped together under a number and a reconstructed etymon. Reconstructed terms are marked by an asterisk.

Each reconstructed word or etymon is attributed to a certain level of the AN family tree, the highest level justified by the distribution of the cognate set across subgroups. Below it are listed the cognates from contemporary languages. These are ordered according to subgroup, usually proceeding roughly in a west-to-east direction, for example, WMP cognates precede CMP cognates which in turn precede EMP cognates. As well as giving the highest-level reconstruction we often give intermediate-level reconstructions for named interstages, especially when the the interstage reconstruction differs significantly in form or meaning from the highest-order reconstruction. When listing cognates we occasionally

acknowledge sources when the evidence comes from Haddon (1937), Hornell (1936) or Haddon and and Hornell (1938) or a source other than a published dictionary.

The following abbreviations are used for frequently cited subgroups ('P' before any of these abbreviations stands for 'Proto'):

ADM	Admiralty Islands
AN	Austronesian
CMP	Central Malayo-Polynesian
CEMP	Central & Eastern Malayo-Polynesian
CNV	Central & Northern Vanuatu
CP	Central Pacific
EMP	Eastern Malayo-Polynesian
MP	Malayo-Polynesian
MC	Nuclear Micronesian (all Micronesia except Chamorro, Belauan, Yapese)
OC	Oceanic
PN	Polynesian
PT	Papuan Tip (Central, Milne Bay, Northern Provinces of Papua)
SS	South-East Solomonic (Nggela, Guadalcanal, San Cristobal, Malaita)
SHWNG	South Halmahera-West New Guinea
WO	Western Oceanic (New Guinea mainland, New Britain, New Ireland, Western Solomon Islands)

For discussion of the regular sound correspondences between the languages of particular regions or putative subgroups the following are among the chief sources: Formosan: Tsuchida (1976); Philippines: Zorc (1977, 1986), Reid (1982); Malay and Javanese: Adelaar (1991), Nothofer (1975), Sulawesi: Sneddon (1984); Central Maluku: Collins (1983); South Halmahera-West New Guinea (Blust (1978b); Western Oceanic and Admiralty Islands: Ross (1988), Blust (1978a); Solomons: Lichtenberk (1988), Ross (1988) Tryon and Hackman (1983), Pawley (1972); Vanuatu: Clark (1985), Lynch (1978c), Tryon (1976b), Central Pacific: Geraghty (1986), Biggs (1965); Polynesian: Biggs (1978), New Caledonia and Loyalty Islands: Haudricourt (1971), Geraghty (1989b), Ozanne-Rivierre (1992); Nuclear Micronesian: Bender (1971), Jackson (1983).

2. TYPES OF VESSEL AND HULL CONSTRUCTION

2.1 TYPES OF VESSEL

Haddon and Hornell (1938:70-72) referred to ten or so putative cognate sets having the general sense of 'canoe' or 'boat' that go back to an early stage or stages of AN. While early AN speakers probably had several different named types of craft most of Haddon and Hornell's etymologies are false. Only one of their putative cognate sets can be attributed to an early AN interstage – that pointing to PCEMP **waŋka*, POC **waga*.

POC **waga* (phonetically [wáŋga] with [ŋg] being a single phoneme) is widely reflected within Oceanic as a generic term for a canoe or boat with a hull, as opposed to a raft. In many Oceanic languages, however, the reflex of **waga* refers chiefly to large sailing canoes and other large vessels, in contrast to dugout canoes and small outrigger canoes. This range of meanings, taken together with cognate set (5) (under PMP **katiR*) suggests that **waga* may have had two senses in POC.

(1) PCEMP **waŋka* ' outrigger canoe'

CMP: Buru (Ambon) *waga*, Komodo *waŋka* 'boat, canoe'; Manggarai *waŋka* 'canoe'

SHWNG: Mor *wa?a*, Dusner *wak* 'canoe'; Numfor *wa(i)* 'outrigger canoe'; Waropen *gha* 'boat, canoe'

POC **waga* 1. 'large sailing canoe', 2. 'canoe (generic)'

ADM: Wuvulu *wa*, Seimat *wa* 'canoe'

WO: Gedaged *wag* 'large canoe that goes out on the high seas, has one or two masts and a large platform, ship or boat '; Gitua *waŋga* 'canoe'; Jabem *waŋ* 'canoe, boat, ship'; Dobuan *waga* 'sailing canoe'; Molima *waga* 'canoe in general'; Kiriwina *waga* 'generic term for all kinds of sailing craft'; Wedau *waga* 'large canoe'

CNV: Mota *aka* 'canoe', *aka paspasau* 'canoe with plank sides'

PCP **waga* 'sailing canoe': Fijian *waqa* 'generic for boats (traditionally canoes) of all kinds'; Hawaiian *wa'a* 'canoe'; Tikopia *vaka* 'canoe (generic)', *vaka tapu* 'consecrated voyaging canoe'; Tongan *vaka* 'boat (generic)'; Tokelauan *vaka* 'canoe, craft, boat'; Samoan *va'a* 'boat (generic)', *va'a folau* 'sailing boat (for long voyages)'

PMC **waxa* 'canoe': Kiribati *waa*, Marshallese *waha*, *wah*, Puluwat *waa* 1. 'canoe, vehicle of any kind', 2. 'container, people in a canoe', *waa-herak* 'large sailing canoe able to face the high seas'; Trukese *waa* 'canoe, boat, vehicle'; Woleaian *wa* 'generic for all canoes'

Note also Bolaang-Mongandow (N. Sulawesi) *waŋgah* 'canoe'. This is the only reported cognate in a WMP language but the form is possibly borrowed from a CEMP source.

The primary sense of POC **waga* was perhaps 'large sailing canoe' in contrast to paddling canoes (dugouts and small outrigger canoes). This sense is widely reflected across subgroups of Oceanic. As the name of the largest and most prestigious type, **waga* would have been a natural choice as a generic term for all types of canoe and in a number of languages the generic sense has become primary. An example is Kiriwina or Kilivila, the language of the Trobriand Islands (reported by Haddon (1937:267-269), based on Malinowski (1922) and correspondence with Malinowski). In Kiriwina there are four named types of canoes. The *kewo'u* is a simple dugout with outrigger, used in the lagoon. The *kalipoulo*, a fishing canoe, is a larger dugout with several designs. These have in common a hull built up with a washstrake on each side, and transverse carved and painted breakwaters, and the hull usually has pointed ends, carved and painted. There is often a platform over the booms. The sail is a lateen. The *masawa* is a large trading canoe, similarly constructed to the *kalipoulo* but with two clinker-built washstrakes on each side and 20 or more booms covered by a continuous platform. It carries a large, elongated steering oar worked by two men. The *nagega* is larger and more seaworthy than the *masawa*, with higher sides and more carrying capacity and a central standing mast, as opposed to a leaning mast stepped within the hull and shored by a prop. The generic term for all these craft is *waga*. In another part of Papua, around Samarai, Abel (1902:63) reports that *vaga* is the generic for all kinds of sailing canoes, but evidently excludes canoes without outriggers or sails.

Cognates belonging to set (1) are sometimes placed together with forms such as those listed in sets (2) and (3) below.

(2) WMP: Malay, Javanese *waŋkaŋ*, Ngadju Dayak *vaŋkaŋ* 'Chinese junk'

(3) PAN **ba(ŋ)ka(q)* '? outrigger canoe, dugout canoe'
Formosan: Kuvalan *baŋka* 'canoe' (term obsolete; cited by Ferrell 1969, pp. 42, 247), the only reported cognate in a Formosan witness
WMP: (i) Philippines: Aklanon *baŋca*, Balangaw *baŋka* 'canoe'; Cebuano *baŋka?* 'a one piece dug-out between 5 and 15 metres, optionally with one or two masts and outrigger'; Ilongot *bangka*, Tagalog *baŋka?* 'canoe'; Tausug *baŋkaq* 'dugout canoe (without outrigger'; (ii) Sulawesi: Laiyolo (S. Sulawesi) *bɨŋka* 'canoe, boat'; Tolaki *baŋga* 'canoe'
PCEMP **ba(ŋ)ka* 'canoe'
CMP: Larike (Ambon) *haka*, South Nuaulu (Seram) *haka*, Kola (Aru) *boka* 'canoe'
OC: Nggela *vaka* 'foreign vessel, European ship'; Sa'a *haka*, Roviana *vaka* 'ship'

Although the forms in sets (2) and (3) show a striking resemblance to POC **waga*, they are not demonstrably cognate. In the case of set (2), Malay, Javanese and Ngadju Dayak initial *w* is irregular, suggesting these are borrowed words, though the source of the borrowing is unclear (Adelaar, pers.comm.). In the case of set (3) forms, the uncharacteristic occurrence of the cluster *ŋk* in the Philippine and Formosan forms suggests borrowing from a Malayo-Javanic or Sulawesi source (Reid, pers.comm.). Tagalog and Cebuano *b* are not the regular reflexes of PMP **w*. At present most of the few coastal AN-speaking communities left on Taiwan proper use large bamboo sailing rafts for fishing. However, there is evidence that in the nineteenth century other kinds of craft including double outriggers were in use. Scott (1982:337) cites an eighteenth century Chinese observer, Huang Shi-ching, describing a built-up dugout canoe called a *manka* [or *banka*] as follows:

> A *manka* is a single tree trunk hollowed out, with wooden planks fastened on both sides with rattans; since they have no putty for caulking and water easily enters, the barbarians keep bailing with a ladle.

It is likely (Mark Donohue, pers.comm.) that the Chinese characters in question are from the Hokkien dialect and should be read as *banka* not *manka*, as reported by Scott.

The form **ba(ŋ)ka* is however reflected both in CMP and Oceanic and must be attributed to their common ancestor, which Blust labels PCEMP.

Blust (1984-85:53) writes that only a single term for boat can be reconstructed for PAN itself, namely **qabaŋ*, which he says "may have referred to dugout craft for use in coastal waters". Evidence for this reconstruction includes the following:

(4) PAN **qabaŋ* 'k.o. canoe'
Formosan. The following are glossed 'boat/canoe' by Ferrell (1969:247): Tsou *apāŋə*, Saaroa *?abaŋə*, Favorlang *abak*, Oponohu *havaŋu*, Siraya *avaŋ*
WMP: Yami *avaŋ* 'boat'. The following are all glossed 'canoe' by Reid (1971:58): Bilaan *awIŋ*, Dumagat *qa'beŋ*, Gaddang *qabaŋ*, Manobo (Ilianen) *qavaŋ*, Tagabili *owoŋ* 'canoe'
CMP: Buru *afa-n* 'shelled (rice) husk (shaped like a dugout)'

The weakness of this reconstruction is that it rests primarily on evidence from languages in geogaphically contiguous regions – Formosan and Philippines witnesses. On the other hand, the term is fairly widespread in both regions.

The next term is reconstructable as far back as PMP. But note the disagreement between WMP and Oceanic witnesses as to its meaning.

(5) PMP **katiR* '? (small) outrigger canoe or canoe hull'

PWMP **katiR* 'outrigger float': Malay *katir*, Madurese *kater*, Sundanese *katir*, Maranao *katig*, Tausug *katig*, Cebuano *katig n.* 'float of the outrigger', *v.* 'provide a boat with outrigger'; Sasak *katir* 'carry between two persons'

POC **kati(R)* '? (small) outrigger canoe or canoe hull'

WO: Manam *kati*, Kairiru *qat* 'outrigger canoe'; Nusa (New Ireland) *kati* 'large outrigger canoe 50 or more feet in length' (Haddon 1937:141); Tuam (Siassi) *kat* 'canoe platform'

PPT: Motu *asi* 1. 'hull of large multi-hulled canoe (finished more roughly than single-hulled canoe) (*lagatoi*)', 2. 'large canoe', *asiasi* 'temporary small double canoe'; Sinagoro *gasi* 'outrigger canoe'; Roro *ahi* 'canoe, hull '

Although the WMP cognates denote 'outrigger float', there is a much stronger candidate for that meaning in PMP, namely **(cs)a(R)man* (see cognate set (23) below). Therefore we conclude that **katiR* is unlikely to have meant 'outrigger float' in PMP and that the WMP cognates probably show semantic change. In Oceanic, reflexes of **katiR* are confined to Western Oceanic but are widely dispersed within that large group. The Western Oceanic comparisons strongly point to an earlier meaning such as 'canoe hull' or 'small outrigger canoe'.

2.2 DOUBLE CANOES

It has been suggested (Green, pers.comm.) that the ocean-going double-hulled canoe was an innovation of Oceanic speakers. He argues that it was large double canoes, stable and able to carry big loads while being sailed with traditional rig, that was the key to the transport of people, crops and domestic animals to the far-flung islands of Remote Oceania (the Pacific islands east and north of the New Guinea area, the Bismarck Archipelago and the main Solomon Islands chain).[7] The design of double canoes varied in some details from place to place but the basic structure consisted of two dugout hulls, placed parallel and usually one to two metres apart, joined by booms, with a platform built amidships. In the most efficient craft, represented by the Fijian *drua*, one hull was slightly smaller than the other. At the time of first European contact such craft were almost wholly confined to Remote Oceania, being present in New Caledonia and Fiji, in many parts of Polynesia and in a restricted region of the Central Caroline Islands. In western Melanesia double canoes were made by the Mailu, of south-east coast Papua. The Mailu speak a non-AN language but many of their canoe terms (and other parts of their vocabulary) are from AN; it seems likely that the population of the Mailu area was once largely AN-speaking. The Motu *lagatoi*, a multi-hulled craft, can be derived from the double canoe.

No term for double canoe can safely be reconstructed for any very early AN interstage. However, a number of Oceanic languages reflect the following form:

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7 See Pawley and Green (1973), Green (1991b) for the terms 'Near Oceania' and 'Remote Oceania'.

(6) ? Proto Eastern Oceanic **paqurua* 'double canoe'
SS: Lau (Malaita) *foorua* 'outrigger canoe'
CP: Rotuman *foulua* 'ship' (probably a Polynesian borrowing); Fijian *drua*, *waqa drua* 'ocean-going double canoe'; PPN **fa?urua* 'double canoe': Maori *hourua* 'double canoe'; Tuvaluan *foulua* 'double canoe' (obsolete) (Hornell 1936:302); Niuean *faulua*, *foulua* 'ship'; Rennellese *ha'ugua* 'the double canoe in which the ancestor Kaitu'u sailed when he discovered Rennell and Bellona'
MC: Kiribati *baurua* 'large single-outrigger voyaging canoe' (*b* for **p* unexpected, possibly borrowed from a PN source)

Compare also Samoan *fau-tasi* ' ('large whaleboat', possibly a nineteenth century coinage); Hawaiian *wa'a kau-lua* 'double canoe' vs *wa'a kau-kasi* 'single-hulled canoe'; Manihiki *waka tau-rua* 'double canoe'.

**paqurua* is analysable into **paqu* 'bind, lash; construct by tying together' and **rua* 'two'. Both elements are independently reconstructable for POC (note Samoan *fau* 'make, construct (wooden objects, canoes, etc.)'; Tongan *fo'u* 'build, construct, of boats or canoes only'; Rennellese *ha'u* 'tie, lash'; Lau *foo* 'bind'; Arosi *ho'o* 'bind, fasten, tie'; Sa'a *ho'o* 'bind'; Kiribati *bou* 'construct (canoe, house)').

While it is possible that Lau *foorua* is borrowed from a Polynesian language, the details of form do not support this notion. Lau has the independent bases *foo* 'bind' and *rua* 'two'. Haddon (1937:77) reports Kinilaulau (Carteret I.) *haulua*, *holua* 'outrigger canoe', but this term is probably borrowed from a Polynesian language believed to have been formerly spoken on the island or from nearby Takuu.

Friederici (1928:31) suggests that the double canoe of Oceania (or at least the type with smaller and finer-pointed port hull) originated from a canoe with a single outrigger, on the grounds that (a) in the double canoes of Polynesia and Fiji one of the two hulls is usually smaller, and that the smaller hull is called by the term for the outrigger float (e.g. *hama* in Tongan), and (b) the connecting poles between the hulls are also called by the word for the outrigger booms (*kiato* in Tongan). On the other hand, Haddon and Hornell (1938:43) argue that the most likely origin of the double canoe is from two dugouts lashed together or a short distance apart. They also note the possibility that the single outrigger canoe may ultimately be derived from the double canoe by reducing the port hull to form a float. As the smaller hull and the float, and the connecting poles serve the same purpose in both types of vessels the extension of terms seen in Tongan *hama* and *kiato* is natural. On logical grounds alone it is hard to choose between these historical interpretations. And in this case the linguistic evidence is relatively unhelpful.

Numerous other reconstructions, attributable to interstages lower than PMP and POC, can be made for types of craft. A few examples follow:

(7) PWMP **balutu* 'kind of outrigger canoe': Ata Manobo *balutu,* Binukid *barutu*, Mamanwa *baloto*, Manobo *ba'utu* 'canoe'; Samar Leyte *balutu* 'kind of outrigger canoe'; Tagbanwa (Kalamian) *barutuq* 'dugout with outrigger'

The following doublets (distinct words coexisting in a language whose similar form and meaning suggest they ultimately trace back to the same source) can be reconstructed:

(8) (a) PWMP **padaw* 'kind of sailboat' (Blust 1983-84a:90): Maranao *padao* 'sailboat'; Malay *layar padau* 'storm sail'; Cebuano *paraw* 'schooner', galleon'
(b) PWMP **paraSu* 'boat' (Dempwolff 1938): Toba Batak *parau*, Javanese, Malay *perau*, Ngadju Dayak *parau* 'ship'

These forms have sometimes been compared with Oceanic forms represented by Tongan *folau* 'voyage, travel by sea', Fijian *volau* 'boat shed' (cf. set (51)) .

A PPN reconstruction for a small canoe used close to shore is well supported:

(9) PPN **paopao* 'small outrigger or dugout canoe for inshore use': Samoan *paopao* 'small outrigger canoe, with two booms'; Tongan *poopao* 'roughly made dugout canoe with two boom outrigger'; Tikopian *paopao* 1.'craft made from log simply hollowed out, not built up', 2. 'canoe, sea-going but not sacralised, in contrast to *vaka tapu*'; Nukuoro *paopao* 'double-ended single outrigger with two booms'

A possible cognate occurs in a single Western Oceanic language, Mekeo, of the Central Province of Papua. East Mekeo has *papao* (dialect *fafao*) 'small canoe for children, also used as a trough for feeding pigs'. Reduction of the first vowel cluster of a reduplicated word is characteristic of Mekeo (Jones, pers.comm.). This comparison points to POC **paopao* 'small ourigger canoe', though it needs strengthening by further cognates beyond Polynesian.

Blust (1986:33) reconstructs the term **dakit*, noting a number of reflexes within the WMP region and a regular reflex in one Oceanic language, Motu. To these may be added many other Philippine and Northern Sulawesi reflexes (given in Reid 1971) and three possible reflexes in CMP and Western Oceanic.

(10) PMP **dakit n.* 'raft', *v.* 'join along the length'
PWMP **dakit n.* 'raft': Aklanon *gaakit*, Gaddang *gakit*, Isneg *gaakit*, Ivatan *daakit*, Kankanay *lakit*, Malay *rakit*, Sangir *hakiq*, Sundanese *rakit*, Wolio *rakii v.* 'join along the length'; Balangaw, *dakit* 'put very close'; Sika *dakit-wii* 'cleave, stick together (earth, flour resin)'; Maloh *da?it* 'raft', *dakit* 'join along the length'
CMP: Taliabo *ka/haŋki?* 'raft' (Grimes, pers.comm.)
OC: Motu *rai* 'prepare a canoe for the sea; tie the outrigger on; tie two canoes to make an *irai* (double-hulled canoe)'. Chowning (1985:59) gives Lakalai *lage*, Kove *laGe* 'raft' as possible cognates, although the final vowels are problematic.

2.3 HULL CONSTRUCTION

In pre-European times three basic hull designs were found in AN-speaking communities: (a) a dugout built from a single log; (b) a five-part canoe, composed of dug-out hull, with the sides raised by sewing one side piece or strake to each side, with forked, crutch-shaped pieces at each end; and (c) a built-up canoe, in which a number of planks or strakes are added to a keel. The keel may consist of a thick plank or a dugout underbody (or sometimes two or even three dugouts joined).

Ethnologists have argued on logical grounds that types (b) and (c) developed from the dugout prototype. In his account of Philippine boat-building in the sixteenth and seventeenth centuries, Scott (1982:337-338) sketches a theory of the evolution of the hull of Philippine boats:

> In the ship-building technique [developed in China and Europe in the Middle Ages]...a rigid framework of keel and ribs is first constructed...and the wooden planking of the hull then nailed to it with metal spikes or wooden trenails. The older technique was to build the hull first, plank by plank carved to fit, and to fasten the ribs in afterwards. This technique is probably a natural development of the one-log dugout canoe by adding one board to each side to obtain higher freeboard.
>
> By increasing the number of such additional planks, a fully developed boat or ship is produced. But as the sides of the canoe, or banca, are thinned, some transverse strengthening is required, and this can be provided by running strut-like thwarts across the vessel, securing them to the sides without nails by means of tambukos [lugs] and lashing. For this purpose a flexible rib can be pressed down across all of them and lashed securely to the matching tambukos carved on each plank. Finally a combination of such thwarts and ribs lashed together...produces a sturdy vessel whose hull and other structural parts are held firm under prestressed tension.

The question arises as to whether any or all of these features of hull design are attested in the vocabulary of PMP and other interstages.

2.4 PLANKING

Comparisons (11)-(13) below point to the use by speakers of PMP and its immediate descendants of boats built up by planking and strengthened by thwarts:

(11) PMP **papan* 'plank (of boat, etc.), strake'
- WMP: Malay *papan*, Madurese *papan* (Horridge 1981), Baju *papan* (Horridge), Buginese *papan* (Horridge) 'strake, plank of boat, etc.'
- CMP: Buru *papa-n* 'plank, board'
- POC **baban*, **bapan* 1. 'plank', 2. 'canoe plank or strake'
- WO: Molima *baba* 1. 'lower plank on canoe', 2. 'put plank on canoe'; Wedau *papan/a* 'built-up canoe'
- SS: Lau *baba* 'long side board of canoe'; Sa'a *hapa* 1. 'seat of canoe' (Ivens 1929), 2. 'plank' 3. 'thwart of a canoe' (Ivens 1918); Bugotu *pava* 'plank'
- PCP **baba* 1. 'plank', 2. 'strake on canoe', **bava* 'plank of canoe': Fijian *bava* 'washstrake or upper planks of canoe', *baba* 'side planks of canoe'; PPN **papa* 'plank, board'
- PMC **papa* 'plank (of boat, etc.)': Kosraean *pahp* 'sides of canoe'; Puluwat *paap* 'board, canoe planks'; Trukese *pape-n waa* 'canoe strake' (*pape-* 'plank', *-n* 'construct suffix', *waa* 'canoe')

PMP **papan* evidently referred to any plank or board. It might be argued that this term could have been independently applied to canoe strakes or planks by different daughter languages after the breakup of PMP. However, the fact that in diverse MP languages reflexes of **papan* are consistently used of canoe planks even in cases when another general word for plank or board has developed is a fairly strong indication that this application goes back to PMP times.

(12) POC **(q)oRa* 'strake, probably topstrake (washstrake)'
WO: Mono-Alu *ora* 'median strake at each end, above keel strakes on a canoe with dugout underbody' (Haddon 1937:111)
PPN **(q)oa* 'topstrake, washstrake': Niuean *oa* 'washstrake, grooved and drilled for lashing to the hull'; Samoan *oa* 'gunwale and gunwale flange'; Tokelauan *oa* 'gunwale'; Pukapukan *oa* 'washstrake'; Rarotongan *oa* 'the sideplank or planks of a canoe, lashed to the main body; the gunwhale or sea-board of a canoe'; Maori *oa* 'side boards of a canoe'; Tikopian *oa* 'top strake, gunwale'

Possible cognates of **(q)oRa* occur in Cristobal-Malaitan languages of the South-East Solomon Islands: Arosi *ora*, Lau *ola* 'plank-built canoe (built up from a plank centre keel, with bow and stern keels), with no outrigger'. However, other evidence from South-East Solomon Islands languages confuses the issue. Nggela and Tolo (Guadalcanal) *tiola* 'generic term for plank-built canoes', and 'Are'are *iora*, Sa'a *iola* 'plank-built canoe' might be explained as deriving from a bimorphemic form **ti-(q)oRa* (Cristobal-Malaitan languages regularly lose POC **t*). On the other hand, Bugotu *tola* 'plank-built canoe', and Nggela *tola* 'plank-built canoe with both ends turned up not very high' (Haddon 1937:100) suggest **tola* as a probable source for the Arosi and Lau forms.

The question of how planks were joined is connected to the question of whether early AN communities used stone or metal tools, as the following remarks by Scott (1982:338-339) make clear:

> Historically there are two methods by which the planks in [Philippine] plank-built boats are fastened together – sewing and edge-pegging. Sewing – or, better said, lacing – the boards together is done by drilling a matching row of holes through the two boards near their adjoining edges, and running rattan strips through them in the manner of lacing up a shoe or basketball. This is the older technique and it can be performed with even a simple stone or bone drill, as was still being done in remote Pacific islands...Stone tools are probably inadequate for drilling deep holes in the thin edges of boards, and it is therefore not surprising that edge-pegging does not appear in those distant Pacific islands whose inhabitants presumably migrated there without metal.

We can reconstruct PMP **kiRam* 'adze/axe' and **taRaqi* 'to adze, carve', with reflexes in Oceanic as well as in WMP witnesses, but there are no secure PMP or POC reconstructions for other equipment likely to have been used in boat-building.[8] The current consensus among archaeologists is that the introduction of metal in eastern Asia postdated the breakup of PAN and PMP. Although Blust (1976b) has pointed to comparisons between Formosan and WMP forms suggesting that PAN speakers may have had a knowledge of metal tools, it is likely that this knowledge spread after the breakup of PAN and PMP.

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8 The fruit of the putty nut (*Parinarium laurinum*) is widely used to caulk or stop a vessel. In Proto Huon Gulf an identical term is reconstructable both for the nut and the glue that is made from it:
Proto Huon Gulf **jimiR* 'putty nut, caulking substance' (Ross 1988:79): Tami *jim* 'caulking substance'; Tuam *zimir* 'caulk'; Numbami *dimil-a* 'caulk'
The following set is of uncertain relation to **jimiR*:
POC **jema* 'caulk' (Milke 1968): WOC: Motu *dema-ia* 'caulk'; CP: Fijian *sema* 'splice, join, patch', *sema-ta* 'to splice, join, patch s.th.'

2.5 THWART, CROSS-SEAT

Reconstruction (13) was made by Blust (1972c:67), based on WMP and CP cognates:

(13) PMP **seŋkar* 'cross-seat in boat, thwart'
WMP: Iban *seŋka*, Malay *seŋkar*, Tagalog *saŋkal* 'cross-seat, thwart' (cf. also Tagalog *sikaŋ* 'cross-timber', Malay *seŋkaŋ* 'crossbar of any sort')
POC **soka(r)* 1. 'thwart', 2. 'collar-beam in house, etc.'
PCP **soka*: Fijian *soka* 'thwart', *i-coka* 'collar-beam in house'; Samoan *so'a* 'collar-beam of house'; Tongan *hoka* 'upright timber supporting ridgepole'

2.6 UNDERBODY, KEEL

There is no well-supported PMP reconstruction for 'dugout underbody of canoe (to which planking is added)' or for 'keel of built-up canoe' although both **qabaŋ* and **ba(ŋ)ka(q)* (discussed above) are candidates for the former. Such terms are, however, clearly reconstructable for PCP and perhaps for PWMP:

(14) PCP **takele* 'keel or dugout underbody to which planking is added': Fijian *i-takele*, Wayan *takele* 'keel or dugout underbody'
PPN **takele* 'keel or dugout underbody': Tongan *takele*, Samoan *ta'ele*, Maori *takere* 'keel or dugout underbody'; Tikopian *takere* 'bottom of container, bilge of a canoe hull'; Rarotongan *takere* 'dugout underbody when washstrakes are present'; Hawaiian *ka'ele* 'canoe hull; inside bottom of a container'

(15) PWMP **lu(nŋ)as* 'keel or dugout underbody': Malay *lunas*, Javanese *lunas*, Iban *lunas* 'dugout shell of a Dayak boat'; Tagalog *lunas* 'floor or bottom of a boat'; Tausug *lunas* 'keel'

The restricted geographic distribution of the forms in set (15) makes it hard to rule out diffusion.

2.7 BILGE, INTERIOR OF HULL

A PPN term for 'bilge, interior of hull' is well supported but cognates have not been noted elsewhere. In some Polynesian languages the same term refers to the interior of any container, such as a cup or basket

(16) PPN **liu* 'bilge, interior of hull': Tongan *liu* 'bilge'; Niuean *liu* 'inside of a cup, canoe'; Samoan *liu* 'bilge water'; Maori *riu* 'bilge, valley, basin'; Rennellese *giu* 'bilge, interior of basket, bowl, etc.'; Tikopian *riu* 'the inside of a container; bilge of a canoe'

2.8 BOW AND STERN

Two well-attested POC locative nouns having the general sense of 'rear, back part', and 'front, front part', respectively, are reconstructable also with the specialised senses 'stern' and 'bow'. The first of these terms goes back at least to PMP.

(17) POC **muri-* 'rear, stern'
WO: Gedaged *muzi-n* 'rear, stern'; Nakanai *mori*, Vitu *muri* 'stern'

Mussau: Emirau *muri* 'stern'

SS: Ghari *muri-na* 'stern of a boat, hindquarters'; Lau *buri* 'stern, rear'; Sa'a *puri* 'stern'

PPN**tau-muli* 'rear, stern' (see comparison (21))

(18) POC **muqa* - 'front, bow of boat'

WO: Gedaged *muga-ŋ* 'front part, bow of boat' (Gedaged *g* for POC **q* irregular); Roviana *ke/mua* 'bow'

Mussau: Emirau *mua* 'bow'

PCP **muqa* 'front part, bow of boat': Fijian *mua* 'tip, point, front', *mua e liu* 'prow of boat'; Tongan *tau-mu'a v.* 'steer for s.th.', *n.* 1. 'prow', 2. aim, goal'; Samoan *tau-mua* 'bows of boat'

(19) PWMP **(zZ)uluŋ* 'prow' (Blust 1970:145): Iban *juloŋ* 'bowsprit'; Kelabit *duluŋ* 'prow'; Tagalog *duoŋ* 'bow, prow'; Maranao *loloŋ* 'prow'

The problem with cognate set (19) is that all the witnesses are geographically close – the Philippines and Borneo – and it is hard to rule out early borrowing among them.

2.9 CARVED PROJECTING END-PIECES

In many regions of Oceania larger canoes are constructed with a projecting headboard, part of it resting on the underbody abutting the washstrake, the rest sometimes extending several feet beyond. The end of such headboards usually consists of an elaborately carved figurehead, often a human or animal head or figure. There is a corresponding carved end-board at the stern, often standing more or less vertical. Such carved end-pieces are common, for example, in Eastern Polynesia, the Solomon Islands, the Massim, the north coast of New Guinea and the Bismarck Archipelago. A POC reconstruction can be made for the name of the headboard:

(20) POC **ijuŋ* 'projecting headboard of prow, often with ornately carved figurehead'

WO: Haddon (1937:104, 106) gives *toto/ishu* for 'figurehead on canoe prow' for an unspecified New Georgia language (cf. also Roviana *ŋuzuŋuzu* 'figurehead of a *tomoko* war canoe'; Iduna (Bwaidoga) *mudu* 'carved prow', indicating PWO **ŋuju*).

St Matthias: Emirau *uru/gila* 'beaklike projection on bow, in shape of a bird' (Haddon 1937:145)

SS: Sa'a *'isu* 'pieces erected on bow and stern'; Lau *isu* 'prow'

PPN: Maori *ihu waka* 'carved figurehead on prow (also called *tau ihu* vs *tau rapa* 'carved ornament on stern'); Tikopian *isu fana* 'pointed end of canoe'; Hawaiian *ihu* 'prow', *la'au ihu* 'end-piece at head' (vs *la'au hope* 'end-piece at stern'); Tahitian *ihu*, also *ihu va'a* 'projecting headboard on prow'; Manihiki *ihu* 'projecting headboard'; Tongareva *isu* 'projecting headboard'

The central meaning of POC **ijuŋ* was 'nose' and that of **ŋuju* 'beak, snout, mouth'. Reflexes of both commonly have the extended sense 'projecting point'. The conjunction of South-East Solomon Islands and Polynesian evidence suggests **isu* as the more likely POC form carrying the sense 'projecting headboard'. No widespread cognate set for the stern-piece has been noted.

2.10 BOW AND STERN COVERS, END-DECKING

While outrigger canoes with simple dugout hull are suitable for inshore sailing, seaworthy canoes require at least 'end-decking', minimally a V-shaped piece covering the bow and stern of the dugout hull. The next comparison points to a PCP term for this piece; PCP **tau* may come from POC **taRu* 'to cover up':

(21) PCP **tau* 'end-decking, end-piece covering bow and stern of canoe hull': Fijian *tau* 'triangular decking covering bow and stern'; Rotuman *fau v.* 'cover', *n.* 'cover'
PPN **tau*: 'end-piece covering bow and stern': Nukuria *tau* 'bow-board, stern board'; Samoan *tau* 'deck', *tau-mua* 'bow, foredeck', *tau muli* 'stern, afterdeck'; Tongan *tau-mu'a* 'bow, foredeck', *tau-muli* 'stern, afterdeck'; Tikopian *tau-muli* 'stern'; Tokelauan *tau* 'point at which the keel meets the curve of the bow or stern', *tau-mua* 'bow, forepart of boat', *tau-muli* 'stern'; Maori *tau-rapa* 'carved end-piece affixed to stern' *tau-ihu* 'carved figurehead affixed to prow'
R. Jackson (pers.comm.) suggests Proto Trukic **tau* '? thwart, cross-seat in canoe' based on Carolinean, Trukese *soo*, Puluwatese *ho* 'thwart'.

The above Polynesian comparisons also indicate PPN **tau-mu?a* 'foredeck' and **tau-muri* 'afterdeck'.

3. SUPERSTRUCTURE

3.1 PLATFORM

On medium-sized and large canoes a platform is sometimes built over the hull and the outrigger (or between the two hulls on double canoes) or two platforms are built, one on the outrigger and one on the starboard side. No PMP term for such a platform is reconstructable on present evidence but there is a strong candidate for a POC term, namely:

(22) POC **patar* 'platform of any kind, including that erected over hull and outrigger framework'
ADM: Ninigo *pacha* 'canoe platform' (Haddon 1937:137)
PWO **patar* or **patapatar* 'platform, canoe platform': Kuanua *vatar* 'bamboo or board platform on canoe'; Kiriwina *pitapatile* 'canoe platform'; Molima *vatavata* 'platform of any kind', *vatavatal/a* 'canoe platform'; Daui (Bonabona) *patapatari* 'canoe platform of poles stretching across all the booms' (Haddon 1937: 243); Motu *pata* 'shelf, table'
SS: Arosi *haa* 'platform'; 'Are'are *haa* 'generic name for stage, shelf, small platform above fireplace'; Tolo (Guadalcanal) *pata* 'raft'
CNV: Raga *bata* 'canoe platform' (Haddon 1937:35)
PCP **vata* 'platform, shelf': Fijian *vata* 'platform, shelf'; Rennellese *hata* 'platform, canoe platform'; Samoan *fata* 'platform (over canoe, etc.)'

3.2 CABIN, DECK HUT

A deck hut is often added to large outrigger canoes but no widespead cognate set distinctively denoting such a structure has so far been noted. In a number of languages reflexes of PMP **balay*, POC **pale* 'hut, shed, open-sided house' are used for a deck hut,

for example, Fijian *vale waqa* (lit. 'canoe house') and *valevale* 'hut' (Hornell 1936:323), and this may also have been the case in POC.

4. OUTRIGGER STRUCTURE

4.1 OUTRIGGER FLOAT, OUTRIGGER SIDE OF CANOE

The meaning 'outrigger float' can be attributed to PMP **(cs)a(R)man*. This term is well attested in Oceanic and CEMP, but rare in WMP. In many WMP languages it has been replaced in this meaning by a reflex of **katiR* (see cognate set (5) above). In Oceanic languages the reflex of POC **saman* also has the sense of 'outrigger side of the canoe', in contrast to **katae* 'free side of canoe' (see cognate set (26)).

(23) PMP, PWMP **(cs)a(R)man* 'outrigger float'

WMP: Sangir *sahemaŋ*, Tonsea (N. Sulawesi) *sareman* '? paddle'; Chamorro *sakman* 'large canoe from Polynesia or Papua. No outrigger, capable of carrying over 100 people'

CEMP: Ujir (Aru I.) *arman* 'outrigger float'; CMP: Ambonese Malay *semaŋ*, Buru *seman*, Larike *simanu*, Kola *ama*, Dobel *yer'man* 'wooden strut which supports float'

POC **saman* 'outrigger float'

ADM: Wuvulu *tama-ne*, Ninigo *cham* 'outrigger float'

Mussau: Emira *saman/a* 'outrigger float'

WO: Gedaged *sam* 'outrigger float'; Nehan *haman* 'boom' (vs *niag* 'float'); Manam *rama* 'outrigger' (gloss dubious, probably should be 'outrigger float')

CNV: Mota *sama* 1. 'outrigger of a canoe', 2. 'to tack, lie on the other tack'; Paamese *a/sem* 'outrigger'

PCP **zama* 1. 'outrigger float', 2. 'smaller hull of double canoe': Fijian *cama* 1. 'outrigger float', 2. 'smaller hull of double canoe'; Tongan *hama* 1. 'outrigger, 2. 'smaller hull of outrigger'; Tikopian *ama* 'outrigger including float, always on port side'

PMC **zama* 'outrigger float': Kiribati *rama*, Marshallese *-tam*, Puluwat *taam*, Trukese *taam* 'outrigger float'

Oceanic languages of the Papuan Tip subgroup reflect **sarima* rather than **saman* (e.g. Motu *darima*, Daui *salima*, Dobu *salime*, Molima *salima*). The **sarima* forms possibly continue PMP **(c,s)aRman* with irregular insertion of *i*. A similar insertion occurs in the PMP verbal prefix **paR-*, continued as POC **paRi-*.[9]

4.2 OUTRIGGER BOOMS

The outrigger float is connected to the hull by booms, two or three in the case of small canoes but often five or more in larger, ocean-going canoes. A term for 'outrigger boom' can be reconstructed for POC but not for PMP:

(24) POC **kiajo* 'outrigger boom'

ADM: Loniu *kiec* 'outrigger boom'

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9 See Pawley (1973:172).

WO: Wogeo *kiajo*, Manam *kiazo*, Emira *iaro*, Kiriwina *kiaro*, Gedaged *aia*, Jabem *kion*, Dobuan *kiyas*, Barima (S.W. Umboi) *kiada* 'outrigger boom'
SS: Aroma *iaro* 'sticks connecting float to boom' (Haddon 1937:225)
CNV: North Efate *kiato* 'outrigger boom' (probably Polynesian borrowing)
PPN **kiato* 'outrigger boom': Tongan *kiato*, Rennellese *kiato*, Samoan *'iato*
PMC **kiajo* 'outrigger boom': Kiribati *kiaro*, Kosraean *kiyacs* (Western MC languages reflect **kiau:* Marshallese *kiyey*, Puluwat *kiyo*)

Fijian *i-kaso* 'outrigger boom' (zero for **i* irregular) has sometimes been included in this class but probably belongs to a separate set, along with such forms as Mota *gaso* 'rafter', Lau *'ato* 'rafter', which derive from a well-established etymon PMP **kasaw*, POC **kaso* 'rafter'. However, the comparison with Lau *ato* 'outrigger boom' suggests that POC **kaso* probably had the general meaning 'connecting beam or brace', and as well as denoting cross-beams in a house may have been used as a synonym of **kiajo*.[10]

4.3 CONNECTIVE STICKS ATTACHING FLOAT

Three main methods of connecting the outrigger float to the booms can be distinguished: direct attachment, in which all of the booms are curved and lashed directly to the outrigger; indirect attachment, in which all of the booms are lashed to sticks that are implanted in or lashed to the float; and mixed attachment, in which some booms are attached directly and others indirectly. A great diversity of methods of indirect attachment is found.

A POC reconstruction for the connective sticks (stanchions, struts) was made by Milke (1968) and is well attested. A single cognate in the West New Guinea language, Numfor, allows tentative attribution of this etymon (with indeterminate final vowel) to Proto Eastern Malayo-Polynesian.

(25) PEMP **patotV* 'connective sticks or stanchions attaching float to booms'
SHWNG: Numfor *fakok* 'connective sticks attaching float' (*k* for **t* regular)
POC **patoto* 'connective sticks attaching float'
WO: Mandok (Siassi) *patot*, Arifama *batoto*, Gedaged *patot*, Tuam *patot*, Kilenge *patutu*, Lihir *hidudu* 'connective sticks attaching float' (cf. Mekeo *ikoko* 'nail')
CNV: Aoba *batoto* 'connecting sticks attaching float'
PCP **vatoto* 'connective sticks or stanchions attaching float to booms': Fijian *i-vatoto*; PPN **fatoto* (Biggs n.d.)

4.4 STARBOARD OR HULL SIDE OF OUTRIGGER CANOE

A POC term can be reconstructed with the sense 'the starboards or free side of the canoe, opposite the outrigger side (**saman*)'. In Central Pacific languages this term was also applied to the larger hull of a double canoe.

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10 The resemblance in form and meaning between **kaso* and **so(ŋ)ka* in POC and certain daughter languages is noteworthy.

(26) POC **katae, katea* [11] 'free side of canoe, opposite the outrigger'

WO: Gedaged *a'tai* 'projecting part of the canoe platform, opposite outrigger'; Barim (S.W. Umboi) *kat* 'platform of canoe'; Vitu *kata* 'port side of canoe, contrasting with *lama* 'starboard'; Manam *ete'a* 'port side of canoe'; Tami *kataŋ* 'side opposite outrigger'

CNV: Mota *gatae* 'the free side of a canoe, where the outrigger is not'

PCP **katae*, **katea* 1.'side opposite outrigger', 2. 'larger hull in double canoe': Fijian *kataa* 1. 'starboard side of canoe', 2. 'larger hull of double canoe'; PPN **katea*: Tongan *katea* 'larger hull, main part of canoe as distinct from the *ham* '; Tikopian *katea* 'starboard side of canoe, opposite the outrigger or *tuama* side'; Samoan *atea* 'hull side of a canoe, as opposed to the *ama*'; Hawaiian *'akea* 'starboard hull of double canoe'

PMC **katae* 'lee side of canoe': Marshallese *kejah*, Ponapean *kasah*, Trukese *asa*, Woleaian *i-setah* 'lee side of canoe'; Gilbertese *katea* 'leeward side of canoe'

No non-Oceanic cognates of set (26) are known.

5. SAIL AND RIGGING

The characteristic Oceanic sail types are: (a) a triangular sprit sail with apex downwards and a spar along each of the two sides stemming from the apex, and (b) the (crab) claw sail – a triangular sail with the foreside fixed to a vertical mast and the afterside to a strongly curved sprit, whose lower end is attached to the foot of the mast. In Indonesia a number of other types of sail are found. Both fixed masts and movable masts or props are used in Indonesia and in the Pacific Islands. The pole is stepped in a socket or on a thwart amidships and can be rotated and raked towards either end by means of running stays.

We give here a further quote from Horridge (1986:56-57):

> It is my belief, based on distribution, comparative vocabularies and engineering principles, that the fixed mast with a halyard spread into Malayo-Polynesian communities from the Indian Ocean along with the introduction of the pulley. A large sail of matting could not be raised at sea without a pulley unless it was pushed up by a loose pole. There are no signs that even the last Austronesian-speaking migrants to move out into the Pacific knew about the tripod mast, the tilted rectangular sail, the pulley or the quarter rudder lashed to a rudder support. All of these features also spread only a little way up the mainland coast towards China...The tilted rectangular sail seems to have spread from the Indian Ocean, perhaps even from...Egypt, and to have arrived in Indonesia about 2,000 years ago...It has spread eastwards about as far as the quarter rudder and the pulley.

On some of these points the linguistic evidence appears to be silent. However, several terms for parts of the rig are attributable to POC or to later interstages of Oceanic:

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[11] Paul Geraghty (pers.comm.) argues that the POC form was **katae*, and that the form **katea* is a PPN innovation which has been borrowed by a few other languages.

5.1 SAIL

A PMP term for 'sail' (the object) is continued in all the major subgroups:

(27) PMP **layaR* 'sail'
PWMP **layaR* 'sail': Malay *layar*, Tagalog *layag*, Maranao *laiag*, Tausug *layag*, Cebuano *layag n.* 'sail of a boat, *v.* 'put up the sail for a boat to sail'
CMP: Buru *laa* 'sail'
POC **layaR* 'sail'
WO: Gedaged *lai*; Barim (S.W. Umboi) *lai*, Dobuan *naia*, Motu *lara*, Jabem *lac n.* 'sail (of a boat, a canoe)', *v.* 'sail', 'sail across, sail or steer canoe towards a goal'
CNV: Namakura *na-la*, North Efate *na-lae*, Paamese alaa 'sail'
PCP **laya* 'sail': Fijian *laca*, PPN **laa* 'sail'
MC: Marshallese *wej-lay* 'sail'

Traditional Oceanic sails are made of matting, woven from pandanus leaves or other plant fibres. It is therefore not surprising to find a POC term whose primary sense was probably 'mat' also having the meaning 'sail' in a few languages. Given that POC **layaR* 'sail' is well established, it is likely that **qeba* independently acquired the sense 'sail' in more than one daughter language.

(28) POC **qeba* 1. 'mat', ? 2. 'matting sail'
WOC: Suau *eba* 'mat, used as sail' (Haddon 1937:244); Keapara *geba* 'mat'
SS: Lau *eba*, Arosi *epa* 'pandanus sleeping mat'
CNV: Mota *epa* 'mat, sail'; Raga *ebe* 'mat'; Tangoa ep"a 'mat, bed'
CP: Samoan *epa* 'mat, used to wrap dead'; Rotuman *epa* 'mat'
MC: Woleaian *yepe* 'baby's mat'

5.2 BOOM AND YARD OF SAIL

The following form is well attested though its reflexes show a range of meanings:

(29) POC **jila* 'boom or yard of (triangular) sail'
ADM: Seimat *sil* 'boom of sail'; Ninigo *sil* 'booms of triangular sail' (Haddon 1937:176); Penchal *cil* 'sheet of sail'; Lou *e/sil* 'horizontal support for sail'
WO: Tuam *na/sila* 'yard or boom of sail'
CNV: Mota *pane sila* 'projecting boom of a sail'; Paamese *a/sil* 'mast; central trunk of tree that grows straight up'
PCP **jila* 'boom of (triangular) sail': Fijian *sila* 'sheet of a sail'; PPN **tila* 'yard of sail': Samoan *tila* 1. 'sprit or spar of sail', 2. 'mast', *tila lalo* 'lower sprit' vs *tila tu* 'yard, upper sprit'; Tikopian *tira* 'mast or spar of sailing canoe'; Tongan *sila n.* 'yard, for a sail to hang from', *v.* 'shorten the sheet of a sail'; Pukapukan *tila* 'yard of sail'; Tahitian *tira*, Mangaian *tira* 'mast'; Maori *tira tuu* 'yard of sail, upper sprit'

POC or PCP **jila* has commonly (e.g. Blust 1976b, Geraghty 1986, Ross 1988) been glossed 'sheet', referring to the rope fastened to the lower corner of a sail to hold it and control its angle. The weight of the evidence, however, suggests that the term referred in POC to the booms or poles used to extend and support a triangular sail, denoting either the upper pole (the yard) or the lower pole (the boom). The use of reflexes of **jila* to denote a

fixed mast is confined to certain parts of Polynesia and this sense probably represents a post-PPN innovation. Most Oceanic craft with triangular sails do not use a fixed mast. In one kind of rigging (spritsail) the longer of the two poles extending the sail serves as the mast, with a mast-shore or stays to secure it, or with the apex of the two poles resting on the deck. In another kind of rigging (lateen), the mast is a separate moveable pole which pivots on a thwart in the dugout or on a socket on the deck and is supported by ropes (stays or sheets) tied to the hull or outrigger and sometimes by a mast-shore. The use of reflexes of **jila* for 'mast' and for 'sheet' in various Oceanic languages can thus be derived from the original functions of the booms as supporting and controlling the sail.

5.3 MAST OR PROPS SUPPORTING MAST

(30) POC **kayu-tuqur* '? vertical supporting timber, prop supporting rig'
SS: Arosi *auu* 1. 'centre post of house', 2. 'mast'
PPN **kautuʔu* ? 'central supporting timber, prop supporting rig': Maori *raa kautuu* 'mast and sail' (according to Best (1925a:183), the term *ra kautu* [=*raa kautuu*] refers to a (triangular) sail with mast that is stepped upright in a cupped boss on the floor of the dugout); Tongan *kautu'u* 'yard on a mast'; Samoan *'autuu n.* 'core, centre, main theme', *v.* 'centre around, revolve around something'
PMC **ka(u)tuu* 'mast' (Jackson 1983:341): Carolinean *ayu* 'mast'

Compare also Motu *au tubua* 'mast, centre post of a house' (*au* 'wood, stick', *tubua* 'upright'; Ninigo *kau/ehu* 'mast', where a reflex of **kayu* is the first element.

POC **kayu-tuqur* (evidently a compound of **kayu* 'wood, stick, pole' and **tuqur* 'stand; fixed') possibly referred to any main supporting timber including the prop or mast of a boat. This compound has reflexes in South-East Solomonic, Polynesian and Nuclear Micronesian and possibly in Motu. It appears to have been already lexicalised in the immediate common ancestor of these groups.

(31) ? PEO **pana* '? mast, boom stepped on foot of mast'
CNV: Mota *pane/i* 'boom with forked end stepped on the foot of the mast', *pane sila* 'projecting boom of a sail'
PCP **vanaa* 'mast': Fijian *i-vanaa*, Samoan *fanaa*, Tongan *fanaa*, Tokelauan *fanaa* 'mast'

As the Central Pacific languages in comparison (31) are all in the Fiji-West Polynesia region and innovations in canoe design are known to have moved freely within this region, the PCP antiquity of **vanaa* may be questioned. On the other hand, the correspondences Fijian *v*, Tongan, Samoan *f* are regular, unlike recent Fijian-Polynesian borrowings, where Fijian *v* has been borrowed as *v*. There is a possible cognate in Mota.

5.4 MAST STAYS

The following cognate set appears to be confined to Central Pacific:

(32) PCP **tuku* 'running stay supporting sail': Fijian *tuku*, Tongan *tuku*, Samoan *tu'u* 'running stay from foredeck'; Tokelauan *tuku* 'guy rope of traditional sail, fastened to the outrigger'

The forms in (32) may be cognate with PCP **tuku* 'let go, slacken'. Again, the narrow geographic range of this cognate set makes it hard to rule out diffusion.

6. STEERING OAR

A PMP term for steering oar is well supported. Contemporary languages which retain this term now apply it to rudders but there is no reason to believe that rudders were in use in PMP times. A verbal use 'to steer (a boat from the stern)' can also be reconstructed. In many languages this verbal use has now generalised to any kind of steering of a vessel or vehicle.

(33) PMP **quli(n,ŋ) n.* 'steering oar', *v.* 'steer'

PWMP: **quli(n,ŋ)*: Cebuano *ulin v.* 'steer a boat from the stern, *n.* 'stern'; Maranao *olin v.* 'steer (a vessel, etc.), manage affairs of another', *olin-aq n.* 'steering mechanism', *pang-olin n.* 'rudder'; Bajau *uli* 'steer from the stern'; Mandar *guli, guling* (Horridge 1981), Sangir *uliŋ v.* 'steer', *n.* 'rudder'; Wolio *uli* 'rudder'

CMP: Roti *uli v.* 'steer', *n.* 'rudder'

POC **uliŋ v.* 'steer', *n.* 'rudder'

ADM: Lou (Manus) *kuli/p* 'steering oar'

WO: Kiriwina *kuliga* 'steering oar'; Molima *kuliga* 'steering oar, to steer'; Tami *gul* 'steering paddle'; Gedaged *ulu/m* 'rudder, steering'; Yabem *ŋa/goliŋ,* 'rudder'

PCP **quli v.* 'steer': Fijian *uli v.* 'steer', *n.* 'steering oar, rudder, helm'; PPN **ʔuli v.* 'steer': Tongan *'uli* 'steer' (cf. *fohe 'uli* 'rudder, steering oar'); Samoan *uli* 'steer' (cf. *fa'a-uli v.* 'steer', *n.* 'helmsman', *foe/uli* 'rudder')

7. ACCESSORIES

Under this heading fall objects used or carried on board, such as cargo, anchor, paddles, punting pole, bailer and Triton shell for use as a trumpet.

7.1 CARGO

A single base can be reconstructed, used both as a verb 'be loaded, carry a cargo (of a boat, etc.)' and as a noun 'cargo, load':

(34) PMP **lujan, ujan v.* 'load (a vessel)', *n.* 'load, cargo'

WMP: Tagalog *lulan n.* 'load, cargo, capacity of a vessel or vehicle'; Makassarese *luraŋ v.* 'load'

POC **ujan, *lujan v.* 'load (a boat)', *n.* 'cargo, freight'

PADM **usan v.* 'load, as cargo in a boat': Nauna *us*, Seimat *uxan-i* 'load, as cargo in a boat'

PPT **(q)uzan* 'load a canoe': Dobu *usan/a*, Sinagoro *Xura/udi*, Motu *udauda* 'load a canoe'

PSS **luja v.* 'load (a vessel), *n.* 'load, cargo': Gela, Lau, Kwaio *luda*, Bugotu *luja* 'load a vessel' (*j* for **d* unexplained)

PCP **uja v.* 'load a boat', *n.* 'cargo, freight': Fijian *usa* 'carry a cargo'; PPN **uta v.*' carry a cargo', *n.* 'cargo, freight': Tongan *uta*, Samoan *uta v.* 'carry a cargo', *n.* 'cargo, freight'

MC: Puluwat *wutan v.* 'loaded', *n.* 'cargo, load'

7.2 PADDLES, PADDLING AND PUNTING

There are two well-established PMP terms to do with paddling, **be(R)(cs)ay* and **paluja*:

(35) PMP **be(R)(cs)ay n.* '(canoe) paddle', *v.* 'paddle'
WMP: Aklanon *bugsay* 'a paddle'; Cebuano *bugsay* 'paddle or row a boat'; Ngadju Dayak *besei* 'to paddle'; Buginese *wise*, Wolio *bose* 'a paddle'
CMP: Taliabu *bose* 'a paddle'; Buru *sai* 'to paddle', *sahi-n* 'a paddle'
POC **pose n.* '(canoe) paddle', *v.* 'paddle'
WOC: Manam *ore*, Roviana *vose*, Motu *hode*, Suau *wose n.* 'paddle'
SS: Nggela *vohe*, Lau *fote n.* 'paddle'
CNV: Mota *wose n.* 'paddle'
PCP **voze n.* 'paddle', *v.* 'paddle': Fijian *voce v.* 'paddle' (cf. *i-voce n.* 'paddle'); PPN **fohe n.* 'paddle', *v.* 'paddle'

(36) PMP **pa-luja v.* 'paddle', ? *n.* 'paddle'
PWMP **pa-luja*: Simalur *aluxa* 'a paddle', *aluxa-i* 'to paddle; Mentawai *luga* 'a paddle, to paddle'; Sichule *luga* 'a paddle', *feluxa* 'to paddle'; Nias *alucha* 'a paddle', *may-alucha* 'to paddle'; Toba Batak *luga* 'to row'; Isneg *piloxa* 'the oars and paddles of a canoe'
POC **paluca v.* 'paddle', *n.* 'paddle'
ADM: Likum (S.W. Manus) *heluh*
WO: Roviana *valusa* 'bonito fishing'
SS: Arosi *haruta* 'to paddle'; Lau *falita*, *faluta v.* 'paddle', *n.* 'canoe'
CNV: Ambrym *faloh v.* 'paddle', *n.* 'paddle'; Paamese *valis*, *valus* 'row, paddle'
PMC **fa(s,z)ula v.* 'paddle': Kiribati *arina*, Mokilese *padil*, Ponapean *padil* 'paddle'

It is not clear whether PMP **be(R)(cs)ay* and **paluja* differed in meaning. As the Sichule comparisons show, PMP **paluja* probably derives from a root **luja* denoting a paddle, with the verb 'to paddle' derived by adding the causative prefix **pa-*. **paluja* is now widely reflected meaning both 'a paddle' and 'to paddle' but it may be that its use as a noun developed independently in various languages.

A third form attributable to POC, **sua(C)*, also has some reflexes glossed 'to paddle'. However, the meanings associated with its putative reflexes are quite varied. These meanings include (i) 'scull, in which a standing person holds the oar vertically', (ii) 'punt or pole a boat in shallow water', (iii) *v.* 'paddle', (iv) *n.* 'paddle' and (v) 'steer'. The range of meanings suggests an original reference to a standing person using an oar or pole to propel or to steer a boat. Compare also set (54).

(37) POC **sua(C)* '? to scull, row with oar held vertically'
SS: 'Are'are *sua/hi* 'paddle against the wind'; Lau *sua-la* 'punt, push a canoe with a pole', *sua-li* 'push against'
CNV: Mota *sua* 'to paddle, make a canoe voyage', *sua-va n.* 'paddling, canoe voyage'; Raga *hua*, Tangoa *sua* 'to paddle'
PCP *sua* 'to scull, row with oar held vertically': Fijian *sua v.* 'scull, row, put an oar in two transversal poles lashed across the cross-beams near the deck of a canoe to help in rowing'; Rotuman *sua* 'scull, paddle, oar'; Maori *hua* 'steer, paddle'; Rennellese *sua n.* 'ceremonial paddle with wide blade', *v.* 'go to a ship at anchor (? by paddling)'

Compare also Samoan *sua/ti* 'balance pole of canoe'; Tikopian *sua/ti*, W. Uvean *hua/ge* 'balance pole of sailing canoe'; Wayan (W. Fiji) *due* 'scull, propel a boat by putting an oar or pole vertically into the water and twisting it about', *i-due n.* 'paddle, oar'.

7.3 PUNTING POLE

PMP **təkən* 'pole, staff' was evidently continued in POC both as a noun **tokon* and as a transitive verb **tokon-i-* 'to punt or pole (a boat)':

(38) POC **tokon* 'staff, punting pole', **tokon-i* 'punt or pole (a boat)'
WOC: Gedaged *tok* 'pole, stick, staff'; Tuam *to*, Barim (S.W. Umboi) *to* 'punting pole'; Motu *do*, *doa* 'to pole (a canoe)', *to* 'stay of house, prop of fence, brace'
SS: Ghari *togoni* 'stick for stirring stones'
PCP **toko n.* 'punting pole, staff', **tokon-i v.* 'punt (a boat)': Fijian *i-toko* 'staff, punting pole, *tokon-a v.* 'punt a boat'; Wayan *i-toko* 'staff, punting pole', *tokon-i v.* 'punt a boat'; PPN **toko n.* 'punting pole' (contr. **tokotoko* 'staff, walking stick'), *v.* 'punt': Samoan *to'o*, Tongan *toko*, Tuvaluan *toko*, Rennellese *toko n.* 'punting pole', *v.* 'punt'

Compare WMP: Sangir *tekiŋ* 'staff'; Malay *teken* 'lean on, pressure'; Javanese *teken* 'cane, walking stick'.

7.4 BAILER, BAILING

Three terms to do with bailing water from a vessel can be reconstructed at the PMP level, all of which are continued in PWMP, POC and PCP.

(39) PMP **limas* 'bailer'
PWMP **limas* 'bailer': Cebuano *limas* 1. 'bailer', 2. 'bilge-water', 3. 'bail water out'; Tagalog *limas*, Hova *dima* 'bailer'
CMP: Boano (Seram) *limate* 'bailer'
POC **lima(s)*, *nima(s)* 'bailer'
WOC: Kilenge *na-lima*, Mangseng *lima v.* 'bail'
PCP **nima* 'bailer': Fijian *i-nima* 'bailer', *nima-ta* 'bail it out (of a canoe)'
PMC ** (l,n)ima* 'bailer': Kiribati *a/nima*, Puluwat *niim* 'bailer'

The following PMP reconstruction is given by Blust (1978b:94). Although 'scoop or ladle out' was probably the basic meaning, a number of Oceanic languages use the reflex of **asu* to denote a bailer.

(40) PMP **aŋsu* 'scoop or bail out'
WMP: Javanese *aŋsu* 'draw water'
CMP: Buru *asu-k* 'scoop, dip or bail (water) with a scooper'
POC **asu v.* 'scoop or ladle out', *n.* 'ladle, bailer'
ADM: Wuvulu, Aua *atu* 'bailer, spoon, ladle'
WOC: Gedaged *yasi* 'scoop or ladle out'
CNV: North Efate *na/asu* 'canoe bailer', *m/asi* 'bail'; Raga *a/hua* 'bale water, scoop up'

PCP **asu v.* 'ladle, scoop': Fijian *yacu v.* 'ladle, scoop'; Tongan *ohu* 'ladle or bail out liquid'; Samoan *asu v.* 'scoop, ladle or bail out liquid'; Maori *ahu* 'bailer'

The next comparison shows a PPN term for 'bailer' and 'bail', derived from a PMP form which may have had a more restricted use.

(41) PPN **tataa v.* 'bail out', *n.* 'bailer': Maori *tataa*, Samoan *tataa*, Tokelauan *tataa*, Rarotongan *tataa v.* 'bail, scoop'; *n.* 'anything used as a bailer'; Tongan *tataa* 'bail out'
Compare WMP: Cebuano *tata* 'empty a container by turning it upside down'. This suggests PMP **tata v.* 'empty water from s.th.'.

7.5 PORTABLE FIREPLACE

Seagoing canoes in many places carry a heap of sand, or an old clay pot or wooden basin filled with sand or earth, for use as a fireplace. A reconstruction for such an apparatus can be made only at PCP level:

(42) PCP **taadravu* 'portable fireplace or oven': Fijian *taadravu*, Tongan *taalafu* 'portable fireplace or oven'; PPN **taalafu:* Uvean *talafu* 'cooking box filled with earth and small stones, formerly used in large sailing canoes'; Tokelauan *taalefulefu* 'ashtray'; Rennellese *taa-ngahu n.* 'fire', *v.* 'build a fire for illumination'

Compare also Mota *tarowo* 'white ashes'; Arosi *dohu* 'white ashes, a fireplace'.

The PCP form can be analysed into two elements: the second is clearly **dravu* 'fireplace, hearth', which continues a POC form with the same gloss. The origin of **taa* is less clear.

7.6 ANCHOR

See cognate set (44), section 8.

8. LAUNCHING AND BEACHING, ANCHORING, SHELTERING VESSELS

Outrigger canoes are normally launched from beaches and hauled ashore rather than anchored when not in use. Anchors are not carried on small canoes (which may be left to drift or tethered to the reef while fishing) but stone anchors were commonly carried aboard larger vessels.

8.1 ROLLERS OR SKIDS

A PMP term for canoe rollers or skids is well attested, with reflexes in Philippine, Maluku and Oceanic languages.

(43) PMP **laŋen* 'rollers, skids or blocks to move or raise a boat'
WMP: Maranao *langen* 'rollers'
CMP: Asililu *lane-t*; Buru *laŋe* 'rollers'
POC **laŋon n.* 'rollers', **laŋon-i v.* 'place rollers under a boat'
SS: Arosi *i/rango n.* 'roller for canoes', *v.* 'place rollers under a canoe'

PCP *laŋo, laŋoni n.* 'rollers', *laŋon-i v.* 'place rollers under a boat': Fijian *lago v.* 'place rollers for a canoe, etc.', *lagoni ni waqa* 'canoe rollers'; PPN **laŋo n.* 'rollers': Tongan *langa n.* 'supporting block or beam'; Samoan *lago n.* 'support, prop, pillow, bolster'; Rennellese *gango* 'coaster (as butt ends of coconut fronds or sticks) for dragging a canoe over the beach'; Tikopian *rango n.* 'canoe skid or block', *v.* 'support (a canoe, etc.)'

PMC: **laŋo* 'rollers for canoe': Kiribati *nango*, Marshallese *l'ang*, Woleaian *langa* 'rollers for canoe'

8.2 ANCHORING

There are two fairly well-supported PMP reconstructions to do with anchoring. In comparison (44), the WMP terms refer to an anchor while the Oceanic terms support a verbal reconstruction 'be anchored or moored':

(44) PMP **sauq* ? *n.* 'anchor', ? *v.* 'be anchored'

PWMP **sauq n.* 'anchor': Tagalog *sawoq*, Toba Batak *sawo*, Malay *sauh*, Ngadju Dayak *sauh n.* 'anchor'

CMP: Buru *sau* 'anchor' (possibly borrowed from Malay) (for 'an anchor' many CMP languages use a compound of PMP **batu* 'stone' and **taliS* 'rope, cord': Grimes, pers.comm.)

PEMP **sauq* '? be anchored'

SHWNG: Numfor *sau* 'anchorage'

POC **jau(q)* 'be anchored or moored, come to anchor or rest'

SS: Arosi *dau* '(of canoes) come to rest'; Lau *dau* 'come to anchor; alight, be stationary, at rest'; Sa'a *deu* '(of canoes) settle, be stationary'

PPN **tau* 'be anchored, come to anchor, alight, land, come to rest'; Tongan *tau* 'anchor or moor a boat, park a car'; Samoan *tau* 'moor, anchor'; Maori *tau* 'come to anchor, ride at anchor, lie to'; Tikopian *tau* '(of a vessel) fetch up, come in to land'; Rennellese *tau* 'come to land'

Comparison (45) appears to be represented only in WMP.

(45) PWMP **labuq* 'to anchor' (also 'fall, drop'): Malay *labuh*, Javanese *labuh*, Toba Batak *labu*, Tukang Besi (S.E. Sulawesi) *labu*, Ngadju Dayak *laboh* 'let down, lower; Hova *lavu* 'fall' (cf. also Malay *labuh-an* 'anchorage')

8.3 PASSAGE OR CHANNEL, LANDING-PLACE

The PMP and POC term **sawaŋ* or **sawaq* appears to have been the conventional name for a channel for boats to pass through or to land, or an area of calm water giving safe anchorage. Blust (1983-84a:113) reconstructs **sawaq* 'channel'.

(46) PMP **sawa(ŋ,q)* 'opening used by boats to pass through, channel or strait, safe passage or anchorage'

WMP: Chamorro *sagwa?* 'channel, inlet of water, narrow passage in reef'; Malay *sawaŋ* 'breakwater'

POC **sawaŋ* 'channel in reef giving passage to boats, landing place, anchorage'

ADM: Lou *mara-sa*, Titan *mata/ca*, Wuvulu *tawa* 'channel, passage between islands'

WO: Motu *dava* 'lagoon in atoll, water in chasm or ditch'; Roviana *savaŋa* 'strait between two islands'; Yabem *sawa* 'space, empty area';
SS: 'Are'are *tawa* 'channel in reef, landing place'; Sa'a *tawa* 'landing place'
CP: Rotuman *sava* 'passage or opening in a coral reef'; Fijian *mata/sawa* 'landing place'; Wayan *mata/cawa* 'beach'; Niuean *ava* 'harbour, opening in reef, channel'; Samoan *ava* 'channel, passage in reef; anchorage'; East Futunan *ava* 'anchorage'; Maori *awa* 'channel, landing place for canoes' (cf. also Tongan *ava* 'hole, aperture', *vaha* 'space between, strait, channel')
PMC **sawa* 'channel in reef': Kiribati *rawa*, Marshallese *tew*, Ponapean *-daaw*, Trukese *-taaw*, Woleaian *taawa* 'channel in reef'

There is clear evidence for a POC compound consisting of **mata* 'opening, entrance; focal point' plus **sawaŋ*, with the sense 'landing place for boats'. The South-East Solomon Islands and Kiribati forms suggest the POC compound had the form **mata-ni-sawaŋ*, or **mata-qi-sawaŋ*, with one of the two POC genitive particles **ni* or **qi* (Hooper 1985) linking the two nouns. However, the Admiralty Islands and Fijian forms do not reflect the genitive.

(47) POC **mata-sawaŋ* or **mata-ni/qi-sawaŋ* 'landing place, channel in fringing reef giving passage to boats'
ADM: Lou *marasa*, Titan *mataca* 'channel, landing place'
SS: Arosi *maetawa*, *maitawa* 'a boat landing, landing place where the sea is calm'; Kwaio *maalitakwa* 'landing place, salt water' (the Kwaio are an inland people); Sa'a *maalitawa* 'opening in shore reef, land-place'; 'Are'are *maritawa* 'landing place, channel'
CP: Fijian *matasawa* 'landing place'; Wayan *matacawa* 'beach'
MC: Kiribati *mata n rawarawa* 'channel, gap in reef'

8.4 BOATSHED

While boatsheds, for building and sheltering boats, are common in the Malayo-Polynesian speaking region, no really widespread cognate set for such a building has been noted outside the Central Pacific group. Some Oceanic languages use a simple term reflecting PMP **balay* 'house or building, probably with open sides', as Lou (Manus) *pal* 'boatshed'. Others use a compound nominal whose components, as in English, are the words for 'boat' and 'house'. It may be that speakers of PMP used such a compound but it is hard to rule out the possibility of independent parallel developments in the daughter languages. However, there is good evidence for a distinctive PCP term for boatshed, evidently incorporating the term for 'make a sea voyage' (see set (51)):

(48) PCP **(a)valau*: 'boatshed': Fijian *volau*, Wayan *volau* 'boatshed'; PPN: **af(a,o)lau* 'boatshed'; Tikopian *aforau* 'canoe shed', *mata-aforau* 'canoe yard for sacred canoes'; Samoan *aafolau* 'long house, used e.g. for receiving guests'; Niuean *afolau* 'temporary shelter'; Maori *wharau* 1.'temporary shed or booth', 2. 'canoe shed'; Tongan *alafolau* 'boatshed' (*-l-* unexpected; cf. Tongan *ala folau* 'fit to go to sea')

9. SEAFARING TERMS

A number of terms can be reconstructed at PMP or lower levels for concepts to do with going to sea and navigation. The following is not an exhaustive list.

9.1 EMBARK, RIDE

(49) PMP **sakay* 'embark, be aboard, ride (on a vessel, etc.); also 'ascend, climb, mount'
WMP: Cebuano *sakay* 'travel by sea, embark, ride on a boat, etc'.; Ilokano *sakay*, Bikol *mag-sakay* 'ride in a boat'; Sangir *sakaeŋ* 'boat' (from PMP **sakay-an* 'lit. thing to ride on')
CMP: Asilulu *saka* 'ascend, climb'; Selaru *sai* 'climb, go up, ride, mount'
POC **sake* 'embark, ride on a canoe' (prefix to numerals denoting number of crew carried by a canoe)
SS: Lau *tae* 'embark'; 'Are'are *ta'e* 'ride, embark' (prefix in *ta'e taai* 'one man canoe', *ta'e rua* 'two man canoe', etc.)
CNV: Mota *sage* 'prefix with numerals when men on board a canoe are numbered'
PCP **sake*: Wayan (W. Fijian) *cake* 'embark, go aboard'
PMC **(s,z)ake* 'ride on (a vessel, etc.)': Mokilese *dak*, Ponapean *dake* 'ride'; Carolinean *taata* 'ride on s. th.', Woleaian *tagee-a* 'ride on it, sail in it', *tet/tag* 'ride'

9.2 VOYAGING

Grimes (pers.comm.) points to the following set:

(50) PMP **sumbal* 'sail, sail a far distance'
WMP: Makasar (Sulawesi) *sombala* 'sail' (not known whether *v.* or *n.*)
CMP: Buru (Maluku) *oba-k* 'sail to other (non-visible islands)'; (the following are all Seram) Hatue *sopa*, Paulohi *sopa*, Amahei *topa*, Giman *sobal* 'sail'; Kisar (Timor) *hopol-o* 'to sail'
EMP: Giman (S. Halmahera) *sobal* 'sail' (not known whether *v.* or *n.*)

In set (51) the Central Pacific forms clearly refer to long-distance sailing. There is some question whether the WMP forms are cognate with the Oceanic.

(51) PMP **pa-laSud* 'go down to the sea or coast'
WMP: Cebuano *palawud* 'go to sea'; Ilokano *palaud* 'go to the west, go down to the coast'; Tukang Besi (S.E. Sulawesi) *hena?u* 'descend, go seawards, go west'
POC **palau (r)* 'go to sea, make a sea voyage'
SS: Tolo *vola/volau* 'run, race'
CNV: Raga *walau* 'guide, steer, direct'; Mota *wala/walau* 'paddle all together'; North Efate *wo/wolau* 'steer canoe'
PCP **v(a,o)lau* 'make a sea voyage': Fijian *volau v.* 'make a sea voyage', *n.* 'boat house'; PPN **f(a,o)lau* 'make a sea voyage': Maori *wharau* 1. 'travel, particularly by water', 2.'company of travellers'; Kapingamarangi *horau* 'sail on a long journey'; Tikopian *forau* 'voyage overseas, travel abroad'; Samoan *folau* 'travel by sea, make a voyage; depart, sail', *foolau-ga* 'voyage', *folau-va'a* 'sailor'; Tongan *folau* 'voyage, travel by sea', *folau'anga* 'boat in which one

voyages', *folau'ia* 'be constantly visited by ships'; East Futunan *folau* 'navigation, sea travel'; Rennellese *hogau* 1. 'ocean voyage', 2. 'canoe making an ocean voyage', 3. 'travellers on such a voyage'

MC: Kiribati *borau, boborau* 'travel by sea' (probably borrowed from a Polynesian source)

Compare also Nggela *vinau* 'go by sea'; Proto Trukic **palua* 'navigator, navigational skill'; Nukuoro *balia* 'expert navigator'.

Reid (pers.comm.) suggests that the MP forms derive from a PAN phrase whose constituents were **pa* 'go, towards' and **laSud* 'sea, ocean', giving the meaning 'seawards (from inland)' (contrasting with **daya* 'landwards, towards the interior (from the sea or coast)'. In some languages reflexes of **pa-laSud* are opposed to a phrase of parallel structure meaning 'go inland, go to the mountains'. POC continued **laSud* as **lau(r)* in its original sense (e.g. Mota *lau* 'seawards, coastwards') but evidently reanalysed the sequence **pa-lau(r)* as a single morpheme.

Blust (1978a:216) offers the following:

(52) PEMP **ta(d,R)i* 'steer a course (in navigating)'
SHWNG: Numfor *kar* 'row (while facing one's destination)'
OC: Motu *tari n.* 'rudder, steer-oar', *v.* 'steer a canoe'

The sound correspondences in (52) are regular but one would like further cognates to strengthen the comparison. Lau *tari* 'steer, keep straight on' and 'Are'are *tari/roro* 'steer a canoe (the steersman drawing the paddle towards himself with big strokes)' show a superficial likeness but are not demonstrably cognate, because *t* in Malaitan languages derives from POC **s*. Jackson (pers.comm.) reconstructs Proto Western MC **taraki* 'sail, travel by sea', with reflexes in Trukese, Ponapean and Marshallese but again the resemblance to PEMP **ta(d,r)i* seems to be superficial.

(53) PMP **biluk* '? tack, sail to windward'
PWMP **biluk* 'tack, sail to windward': Javanese *biluk*, Malay *belok*, Ngadju Dayak *biluk*', Tausug *biluk* 'tack'
OC: Sa'a *hilu/hilu* 'zigzag'

(54) PCP **sua* 'tack': Rotuman *sua* 'tack about, change tack'; Tongan *hua* '(of boat) change from one tack to another'

9.3 EXPERT SAILOR OR FISHERMAN

Reconstruction (55) consists of a compound with **tau* 'person, expert, owner' as the first element and **tasi(k)* 'sea' as the second. As reflexes of this compound have been noted only in Micronesia and Polynesia its POC status may be questioned. However, in our view the divergence of Micronesian and Polynesian either coincided with the breakup of POC or occurred soon after.

(55) POC **tau-tasi(k)* 'expert fisherman or sailor, mariner'
PPN **tau-ta(h)i n.* 'expert fisherman or sailor', *v.* 'go fishing in the sea': Samoan *tautai* 'master fisherman, captain of a boat or ship'; Rennellese *tautai* 'go fishing in the sea'; Tikopian *tautai* 'skilled seaman, expert fisherman'; Tokelauan *tautai*

'master fisherman, skipper or captain of a boat'; Tongan *toutai n.* 'mariner, sailor', *v.* 'go fishing', *toutai-'i* 'steer or pilot (a fishing boat)'
MC: Trukese *sowu-set* 'master fisherman'; Carolinean *sou-lee-set* 'skilled fisherman'

Compare also Kuanua *te-na ta* 'sailor' (lit. 'one belonging to the sea').

9.4 BOAT OWNER OR CAPTAIN

In set (56) the first element is again **tau* 'person, owner'. The agreement between Polynesian and Papuan Tip languages may be the result of parallel development. However, in both groups the formation of compounds with **tau* is no longer productive so the chances are that the compounds in question are quite old.

(56) POC **tau (ni) waga* 'owner of a boat'
WO: Molima *to ni waga*; Muyuw *ta-ga-ni-wag* 'canoe owner or captain'
CP: Fijian *tau-kei ni waqa* 'boat owner'; PPN **tau waka* 'canoe owner': Rennellese *tau baka* 'canoe owner, act as a captain'; Tikopian *tau vaka* 'canoe owner'

10. CONCLUSIONS

Little can be said about the presence or absence of terms for the canoe complex and seafaring in PAN itself. The reason is that almost all the known cognate sets for this domain are confined to the putative MP subgroup, which excludes the mainland Formosan languages.[12] It is possible that seafaring terminology was absent or rudimentary in PAN and that the technology for constructing and sailing outrigger canoes developed later, when MP speakers were presumably in the Philippines or Indonesia. However, it seems at least as likely that the Formosan languages have in recent centuries lost a terminology for outrigger canoe technology and seafaring that they once had. To a lesser extent, the absence of cognates may simply reflect the paucity of good dictionaries of Formosan languages.

For PMP upwards of 20 terms to do with watercraft and seafaring can be reconstructed. The comparative lexical evidence allows the following inferences. PMP speakers were familiar with outrigger sailing canoes. Various clues indicate that craft could be quite large. Hulls could be built up with planking. Skids or rollers were used to move vessels on land. A steering paddle was used. Large canoes probably carried anchors. Cargo and paddles, punting poles and bailers were carried on board.

Virtually all the reconstructable PMP canoe and seafaring terms were continued in POC and PCP. In addition, around ten terms can be attributed to POC and PCP that have not so far been reconstructed for PMP. While these figures are impressive, they probably represent only a small proportion of the total body of terms for canoes and seafaring used by the speech communities in question. In contemporary societies where large sailing canoes remain in use it is usual for a language to have over 100 terms for parts of the vessel alone.

Some of the POC and PCP terms which do not have known sources in PMP may be formal innovations. It seems likely, however, that in most cases the innovative forms replaced functionally equivalent PMP terms whose forms are not recoverable on present

12 The language of Yami I., off the south-east coast of Taiwan, is not a Formosan language. It subgroups with the Philippine languages spoken between Luzon and Taiwan.

evidence. This conclusion rests on logical grounds: the presence of certain terms strongly implies that other functionally connected terms also existed. Thus, while we cannot reconstruct with certainty a PMP name for 'outrigger sailing canoe', we can reconstruct PMP terms for 'outrigger float', 'outrigger boom', 'sail' and other relevant parts and equipment. It can therefore safely be inferred that PMP speakers were familiar with outrigger sailing canoes. Furthermore, it seems that all Oceanic languages have a general name for outrigger sailing canoes (as well as, usually, a variety of terms for specific types). It would be very surprising if such a name did not exist in PMP, even if it was not cognate with the term **waŋka* that has been reconstructed for PEMP and POC. The same reasoning applies say, to 'canoe platform', though with slightly less force. A term for such a platform, placed amidships over hull and outrigger booms, is well supported for POC (**patar*) but not for PMP. However, a PMP term for 'to load a vessel' and 'cargo, load carried by a vessel' is reconstructable and it is therefore likely that PMP speakers built platforms on their larger, cargo-carrying outrigger canoes. Although a PMP term for 'strake, plank (of canoe, etc.)' is recoverable, implying familiarity with built-up canoes, no term for the end-decking of a built-up canoe – minimally, triangular end-pieces abutting the topstrake fore and aft – is attributable to PMP. But as end-decking of some sort is a functional necessity in built-up seagoing outrigger canoes it is unlikely that PMP seagoing canoes would have lacked these essential parts.

Further work will undoubtedly add to the body of relevant lexical reconstructions. However, it is unlikely to fill all the gaps. Often the lexical evidence is not fine-grained enough to allow us to recover certain details of vessel design. For example, the lexical reconstructions for the sailing rig do not indicate whether the sails used by PMP speakers were triangular, crab claw or rectangular or whether their vessels had fixed or moveable masts (or both). Nor do the lexical reconstructions tell us whether PMP speakers made canoes with single or double outriggers (or both). There is another reason why it is sometimes difficult to trace changes in technological details through comparative linguistic evidence: whereas we can safely infer knowledge of certain things by the presence of terms for them, we cannot so readily infer ignorance from the lack of reconstructable terms. Consider the double-hulled canoe. A term for double canoe can be attributed to PPN but not to POC. Can we therefore conclude that such a craft was unknown to POC speakers? Certainly not. Inability to reconstruct a term for a certain referent in Proto X does not prove that the referent itself, and a term for it, were unknown to speakers of Proto X. The term may have been lost in all or most daughter languages and its former existence obscured.

The moral we might draw at this point is a rather obvious one: that for doing culture history several disciplines are, ultimately, better than one. Linguistics, and comparative technology need each other, just as both need archaeology and comparative ethnography, to corroborate each other's evidence on certain questions and to provide testimony on points where the other disciplines are mute. It is, of course, important that each field of study contribute its own independent witness before synthesis is attempted. The challenge then becomes how to combine judiciously the evidence from different disciplines.

TERMS FOR RICE AGRICULTURE AND TERRACE BUILDING IN SOME CORDILLERAN LANGUAGES OF THE PHILIPPINES

LAWRENCE A. REID

1. INTRODUCTION

The purpose of this paper is to examine the reconstructable terms for wet rice agriculture in the Central Cordilleran languages of the Northern Philippines, in an attempt to throw light on problems relating to the antiquity and function of the rice terraces found throughout the area where these languages are spoken. The age of the rice terraces has been estimated by some to be in the range of thousands of years, but by others to be in the order of several hundreds of years. Their primary function today is to provide a suitable environment in the rugged terrain of the region for the production of wet rice. Whether this was the function for which the terraces were originally constructed has been questioned in recent anthropological studies which accept the relatively great antiquity of the terraces but view the introduction of wet rice in the region as a relatively recent result of agricultural intensification.

2. BACKGROUND

2.1 GEOGRAPHY

The northern half of the island of Luzon in the Philippines is characterised by a highly complex chain of mountains known as the Cordillera Central. Rising to nearly 3,000 metres they extend for some 300 kilometres in a north-south direction, effectively separating the dry, narrow, coastal strip of north-western Luzon (the Ilocos provinces) from the broad, fertile valley of the Cagayan River in the north-central part of the island (the provinces of Cagayan and Isabela). The Cagayan River has its headwaters in the southern reaches of the Cordillera Central and flows in a northerly direction along the western flanks of the range, picking up the outflow of a number of tributaries draining valleys which, in some cases, reach into the very heart of the range.

The largest of these tributaries is the Chico River, which flows through the centre of the Bontoc area and was possibly the route by which the ancestors of the mountain peoples first gained access into the central and southern sections of the Cordillera.

For many years the Cordillera Central constituted a single political entity known as Mountain Province. It consisted of five sub-provinces, Benguet, Ifugao, Bontoc, Apayao and Kalinga. Now, these entities have been reconstituted as separate provinces, Benguet, Ifugao, Mountain (formerly Bontoc) and Kalinga-Apayao.

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 363-388.
Pacific Linguistics, C-127, 1994.

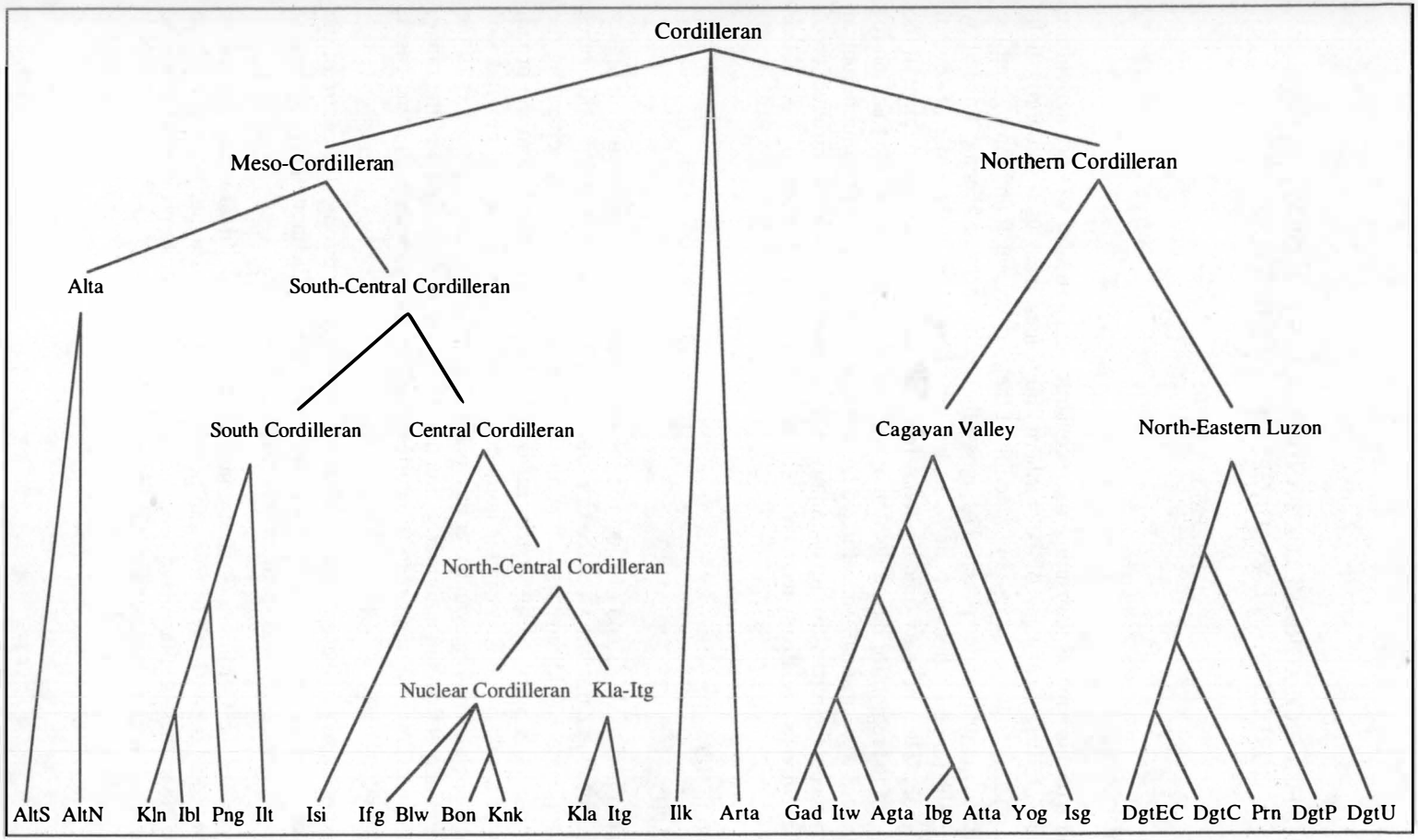

FIGURE: SUBGROUPING OF CORDILLERAN LANGUAGES

2.2 ETHNOLINGUISTIC GROUPS

Northern Luzon is populated by some six and a half million people, close to one million of whom actually live in the provinces of the Cordillera Central. All these people belong to a single, fairly clearly defined, linguistic subgroup. Generally called Cordilleran (or perhaps more appropriately Northern Philippines), it has two major branches, Northern Cordilleran and Meso-Cordilleran. Two languages (Ilokano with some four million speakers and the major trade language of the Cordilleran area, and Arta, a Negrito language with about a dozen remaining speakers) appear to be separate first order branches of this family.

Northern Cordilleran consists of two branches. One is comprised of the languages of the Cagayan River Valley, such as Ibanag, Itawis, Yogad and Gaddang; the other comprises the languages of the eastern coast of Northern Luzon and the Sierra Madre mountains, the great majority of which are spoken by small groups of Negritos commonly referred to as Dumagat. The Meso-Cordilleran branch consists of a small group of Negrito languages called Alta spoken in scattered areas of the southern Sierra Madre and the South-Central Cordilleran branch. South-Central Cordilleran in its turn consists of two branches, South Cordilleran and Central Cordilleran.

The Southern Cordilleran languages, Ilongot, Inibaloi, I'wak, Karaw and Kallahan are spoken throughout the southern reaches of the Cordillera and surrounding lowland areas. One other member of this family, Pangasinan, is spoken only in the lowlands in Pangasinan Province.

The Central Cordilleran languages with which this paper is primarily concerned are Isinai (now spoken only in two small lowland towns in the province of Nueva Vizcaya), Kalinga and Itneg, and the Nuclear Cordilleran group comprised of the Ifugao languages (Kiangan, Batad, Amganad, Bayninan, etc.), Balangaw and Bontok-Kankanay (Bontok, Tukukan, Sagada, Lepanto, etc.). It is the speakers of Nuclear Cordilleran languages who have developed rice terrace culture in the Philippines to its fullest extent.

Their internal relationships are demonstrated in the Figure.[1]

2.3 WET AND DRY RICE

As in most other areas of the Philippines the staple food in the Cordillera is rice. Various other crops supplement rice as the staple, especially in those areas where insufficient is grown to be able to meet the need. Principal additional crops include root crops, primarily sweet potato, as well as taro, yam and cassava and grains such as millet and sorghum, with corn also frequently grown.

Rice is grown with varying degrees of success in this area depending on the type grown and on various ecological and environmental factors. Two types of rice agriculture are found, dry rice, grown in shifting swiddens, and wet rice, grown in terraced pondfields. According to Scott (1958:93) only wet rice techniques are used by the Ifugao, Bontok, Kankanay and other groups of the high mountain regions of Benguet Province; and only dry rice techniques are used by the Isneg and Kalinga, that is in the lower elevation Kalinga and Apayao Provinces. Dry rice cannot be grown successfully at the higher altitudes where the Ifugao and Bontok people live. However, at least in the southern Kalinga municipalities of

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[1] Abbreviations are listed in Appendix 1.

Tinglayan and Pinukpuk, wet rice is grown and is the main food source (SIL 1980:iv), and terminology associated with wet rice agriculture is found.

In Bontoc and Ifugao in particular, wet rice agriculture has resulted in extensive modification of the ecosystem with valley walls and sometimes precipitous mountainsides being carved into terraces whose walls, in Bontoc and in some areas of Ifugao, are built of rocks quarried from the mountainsides or in some cases carried up thousands of feet from the river bed below. Conklin (1980:38) states that in Ifugao alone there are 20,000 kilometres of pondfield walls, 7,000 of which are rock walled. Complex systems of irrigation canals have also been built to provide the constant flow of water necessary for the successful growth of wet rice.

The expenditure of labour necessary for the development of new rice fields and for their maintenance and repair is extremely high. Every heavy rainstorm results in some wall being eroded or collapsing onto the terrace below it and after a typhoon considerable effort must be expended to return damaged fields to a productive state again.

Activities associated with the growing of rice have therefore become central to both Ifugao and Bontok societies. Rituals must be performed at the beginning of the soil preparation season and at every distinct phase of activity, such as preparation of seed beds, transplanting of the seedlings, cleaning of the terrace walls, harvesting and so on. In Bontoc, the formation of the working groups *(ʔubbu)* which will do the soil preparation and related activities is a highly structured social activity and is hedged about with religious sanctions to ensure ultimately a good rice harvest and healthy children in the village (Reid 1972).

3. DATING THE TERRACES

3.1 INTRODUCTION

Looking at the magnitude of the task that the Ifugaos and Bontoks have accomplished, one cannot help but wonder just how long they have been at it. Various hypotheses have appeared in the literature, ranging from Beyer's (1955) claim that the terraces were developed by an in-migration of "Late Indonesian Type B" terrace-building people some 2,000-3,000 years ago, to Keesing's (1962) claim that the Cordillera was probably almost completely unpopulated until settlers with a knowledge of wet rice cultivation fled to the mountains to avoid Spanish taxation and persecution within the last few hundred years and developed them. All these positions are carefully summarised and discussed in Bodner (1986).

Most researchers today (including Scott, Bodner and Conklin) have concluded on the basis of ethnographic and ecological studies that the introduction of wet rice agriculture into the Cordilleran area although apparently occurring at different periods in different areas must have postdated the actual settlement of the area, and that early settlers in the area were dependent not on rice for their staple food, but on root crops such as yam and taro, as well as grains such as millet, sorghum and Job's-tears.

Although I do not believe that linguistic data can provide us with a measure of the actual time that two languages have been separated, the reconstruction of protoforms can provide us with some indication of the life and times of the speakers of that protolanguage. With this in mind I have attempted to compare lexical items associated with pondfield agriculture to

determine if possible whether terrace construction preceded or followed the dispersal of those languages whose speakers are today most closely associated with their development and use.

In the following section I discuss the terminology of terraced pondfield construction. It will be noted that the knowledge of this technology must have predated the dispersal of the Nuclear Cordilleran languages in that nearly all the relevant terminology is reconstructable to Proto Nuclear Cordilleran. It will also be noted that in many instances the terminology is either unique to this subgroup, or it is a specialisation of more general terminology reconstructable to a deeper time depth but without reference to terraced pondfield construction, the implication being that the technology was a local adaption to local environmental conditions, rather than an imported technology. The complete data on which this paper is based is found in Appendix 2.

3.2 PONDFIELD CONSTRUCTION AND MAINTENANCE

(1) PCo, PNoCo **payaw* 'pondfield'; PS-CCo, PSCo, PCCo, PNuCo **payew* 'pondfield, terraced pondfield'.

(2) PCCo, PKI, PNuCo **ʔa:lak* 'irrigation canal'. The presence of a cognate in Isinai has yet to be confirmed. The term may only be reconstructable as far back as Proto North-Central Cordilleran.

(3) PS-CCo, PNuCo **ʔugbu* 'an exchange labour working group'. The intense labour required for the construction of terraced pondfields was probably the reason for the formal development of cooperative working groups in which the members take turn about in receiving the labour of the group in their fields for the day. Although these working groups may be asked to do any kind of labour, the primary function of the group is to assist in the building, maintenance and cultivation of terraced pondfields. In Guinaang, Bontoc, working groups are reconstituted annually, just prior to the beginning of the soil preparation season, and their first ritual work is the turning of soil in a pondfield in Bagiw, probably the first area to be cultivated in the area (Reid 1972). The inclusion of an apparent cognate in Inibaloi pushes the antiquity of this term back to Proto South-Central Cordilleran. Whether or not its use at this period implies terrraced pondfield construction is debatable, since the technology has apparently been introduced only relatively recently into Inibaloi.

Although there is nothing in the phonology of the Inibaloi term to imply a borrowing, it is possible that it was in fact borrowed from a neighbouring Central Cordilleran language along with other terminology relating specifically to pondfield construction, and therefore should only be reconstructed back to Proto Nuclear Cordilleran.

(4) PS-CCo, PSCo, PCCo, PNuCo, PKI **pa:nad* 'level area; to level' (< PCo **pa:naj* 'level area, plain'). The levelling of ground in the mountains for other than the preparation of a residential site generally implies the development of a pondfield terrace, since normal swiddening activity in mountainous areas is typically accomplished on natural hillsides. The development of the Proto Cordilleran term for 'level area, plain' in Proto Nuclear Cordilleran usually relates specifically to the development of a pondfield terrace. In Bontok, as in the Ifugao languages it also means the hard mud layer beneath the cultivated surface of a pondfield, and in Bontok is the name of a spirit that must be placated prior to any agricultural activity in the field.

(5) PNuCo **dubdub* 'movement of soft mud'. Both Bontok and Ifugao have terms which relate to soft, running or oozing mud associated with pondfields. In Bontok it specifically refers to mud formed in the process of hydraulicing, the method by which hillsides are scoured out with running water to develop a terrace.

(6) PNuCo **ʔa:deg* 'to fill with stones and dirt, as the space behind a stone wall during the process of constructing a terrace'. This term, although having the general meaning of 'dry fill' typically applies to the fill used in terraced pondfield construction.

(7) PNuCo **li(:)sang* 'clods of dried mud or dirt'. Specifically, in Bontok and Ifugao, this term applies to either the construction, maintenance or soil preparation activities of terraced pondfields.

(8) PS-CCo, PSCo, PCCo, PKI **tuping* 'stone wall'; PNuCo 1. 'stone retaining wall', 2. 'any orderly heap of objects'. In Nuclear Cordilleran languages this term applies generally to any retaining wall, although specifically to the rock retaining walls of terraced pondfields.

(9) PNuCo **pegnad* 'foundation'. Specifically applied to the foundation layer of large rocks in the construction of terrace retaining walls.

(10) PNuCo **pangdew* 'stepping stones built into the wall of a pondfield'. This term was probably morphologically complex, with *pang-* being an instrumental prefix, however, to my knowledge, none of the northern languages of the Philippines retains a lexical item such as *(ke)dew* or *(ge)dew* which could have been the source of the final syllable.

(11) PS-CCo **b(a,e)neŋ*; PSCo **beneŋ* 'dike for retaining water'; PNuCo **baneŋ* 1. 'top section of a pondfield terrace retaining wall', 2. 'pondfield'. A mud dike is built on top of a pondfield retaining wall to stop water from escaping from the field. In some Bontok dialects the term is used as a metaphor for the field itself.

(12) PNuCo **ʔetʔet* 'to pack holes with mud' (cf. Ilk *ʔetʔet* 'tight; cause to become tight'). This term applies specifically to the packing of holes in the upper sections of a pondfield retaining wall to prevent water seepage. In Bontok the term is used as a noun and applies to the inner wall of the pondfield dike.

(13) PCo **pakpak* 1. 'to slap, to beat with a flat surfaced instrument', 2. 'to fasten two flat surfaces together'; PNuCo 1. 'to fasten two flat surfaces together', 2. 'to stick mud on something, as the top of a retaining wall to prevent leakage'. This is a general, onomatopoeic term in a number of Philippine languages to describe a slapping sound. In Nuclear Cordilleran languages the term has been narrowed to apply specifically to the action of slapping mud onto something, usually the top or sides of a terraced pondfield dike to prevent water seepage.

(14) PCo **gi:waŋ/*gu(:)waŋ* 'to make an opening or hole through; to make a breach in'; PNuCo **gu(:)waŋ* 'breach in a pondfield dike'. A breach is made in pondfield dikes to allow for controlled water drainage.

(15) PCo, PNoCo **teneŋ* 'division in a field'; PNuCoX **batneŋ* 'stone boundary marker in a field; mud dike in a pondfield' (probably a fused form of **batu-n teneŋ* 'stones which are boundary markers').

(16) PCo **pideR* 'be adjacent to'; PNuCo **pidel* 'that part of a pondfield which is adjacent to the base of the retaining wall that supports the pondfield above it'.

(17) PNuCo **ta:ban* 'the cleared ground bordering a pondfield, either the mountain slope above or adjacent to it, or the area below its retaining wall'.

(18) PNuCo **samal* 'preparation of a pondfield prior to transplanting rice seedlings'. Although found with this meaning only in Bontok, it is probable that the term had this meaning also in Proto Ifugao. Present-day Ifugao languages have the term only in a derived form, *hinamal* 'cooked rice', apparently originally meaning 'food from prepared pondfields'.

(19) PNuCo **leweŋ* 'to dig deeply'. A way of soil preparation, specifically applied in Bontok to deep pondfield cultivation.

3.3 THE RICE PLANT AND ITS PARTS

In this section I examine the terms for rice in an attempt to determine whether the speakers of Proto Nuclear Cordilleran knew the plant. It will be seen that terms reconstructable to this level refer not only to the plant (probably pondfield, or wet rice) but also to various parts of the plant, and to stages of its growth. Furthermore, most of these terms can be shown to be reflexes of terms with similar meanings in earlier protolanguages. Some of these terms, such as (22) and (26-31) could apply to grain crops other than rice. However, (20) and (23-25) refer specifically to pondfield rice.

(20) PAn **pa:jey* 'rice plant'; PCo 'pondfield rice plant; unthreshed pondfield rice'; PNoCo, PS-CCo, PSCo, PCCo, PNuCo, PKI **pa:gey* 'pondfield rice plant; unthreshed pondfield rice'. Two terms for rice plant have been reconstructed for Proto Austronesian with reflexes in Philippine languages. Only reflexes of PCo **pa:jey* are found in Nuclear Cordilleran languages, that is those spoken in the area in which only wet rice can be grown. Reflexes of the other term, PCo **ʔemay* (see (21) below), are found only in Northern Cordilleran languages: Isneg, Malaweg, Itawis, Ibanag, Atta and Gaddang, where it typically refers to dry rice grown in swiddens. It is possible that the semantic distinctions noted here for Proto Cordilleran reflect distinctions at much earlier levels, and perhaps go back to Proto Austronesian, although there are both Formosan and Philippine languages which reflect the latter term with the meaning 'cooked rice' (Revel 1988). The Bontok and Balangaw borrowings of a Northern Cordilleran reflex *ʔammay* meaning 'good', or 'tasty', and which can perhaps be associated with the meaning 'cooked rice', must be relatively recent (because of the phonological developments in the term), although the latter meaning does not appear in any available Northern Cordilleran dictionary or wordlist.

(21) PAn **Sem(e)y*; PPh **hemay* 'rice plant, cooked rice'; PCo, PNoCo **ʔemay* 'swidden rice plant; unthreshed swidden rice'.

(22) PCo **dayaket* 'general term for any variety of glutinous rice, cassava, or taro'. The distinction between glutinous and non-glutinous varieties of rice is found throughout the Cordilleran area. Only the general term for glutinous varieties however is reconstructable. Bontok *puddaw* 'non-glutinous rice' is apparently borrowed from Ilokano *pudaw* 'white, light-complexioned, light-coloured' (note also Lepanto Kankanay *pudawan* 'white, light-coloured'), since the Bontok form does not have the expected reflex, *-ew*, of the final diphthong (PCo **-aw* > PS-CCo **-ew*).

(23) PCo **penar*; PNuCo *penal* 'rice grain used for seed'. This term is used specifically for rice seed that is sown in a seed bed from which seedlings will be transplanted into a pondfield. The verbal form means 'to plant a rice seed bed'. None of the Nuclear Cordilleran

languages reflects PPh **binhiq* 'seed', which in most Philippine languages refers to any seed for planting.

(24) PNuCo **padug* 'rice seedling'.

(25) PS-CCo, PSCo, PNuCo **tu:ned* 'to transplant rice seedlings'. Although there is nothing in the phonology of the Inibaloi term to imply a borrowing, it is possible that it was in fact borrowed from a neighbouring Central Cordilleran language along with other terminology relating specifically to pondfield construction, and therefore should only be reconstructed back to Proto Nuclear Cordilleran.

(26) PNuCo **seldiŋ* 'stage of rice development when seed heads have appeared and are beginning to ripen'.

(27) PAn **ZeRami(h,O)* 'stubble'; PCoX **daga:mi* 'rice stubble'. This form reflects an irregular development of **R* as *g* in all the South-Central Cordilleran languages in which a reflex has been identified, as well as in Ilokano. It is similar in this respect to a large number of forms in which it seems PAn **R* irregularly changed into PCo **g*. On the other hand, it could have been borrowed from some Northern Cordilleran language at one or more times in the history of these languages.

(28) PNuCo **ʔu:gas* 'a grain of unhusked rice which has fallen from a harvested rice stalk'.

(29) PNuCo **la(:)siŋ* 'a branch of a rice panicle'.

(30) PCCo, PNuCo, PKI **dugi* 'husk of rice'.

(31) PCCo **ʔu:pak* 'bark of a tree, peeling'; PNuCoX **ʔu(:)pek* 'rice bran; what remains after rice has been pounded and winnowed'.

3.4 Preparation of rice for food

Almost all of the following terms, from harvesting, bundling, storing and winnowing to cooking and serving are today primarily used with reference to rice. However, as Bodner (1986) makes clear, the terms may also be used with reference to other grain crops, such as millet, and in some cases also to taro.

(32) PAn **a(n,N)i*; PPh, PCo, PNuCo *ʔa:ni* 'harvest'.

(33) PCo, PNoCo **rakem*; PCCo, PNuCo, PKI **lakem* 'harvesting knife'.

(34) PCo, PNoCo **beŋel* 'to press or squeeze together'; PNuCo **beŋel* 1. 'bundle', 2. 'a bundle of harvested grain'.

(35) PCo, PNoCo, PSCo, PCCo, PKI, PNuCo **betek* 'bundle, as rice; the tie used to bundle things together; the smallest unit of bundles of rice'.

(36) PCo **ʔi:tiŋ* 'a unit of harvested rice bundles'; PNoCo **ʔi:tiŋ* 'four bundles of harvested rice'; PNuCo **ʔi:tiŋ* 'five bundles of harvested rice'. The Kalinga form is possibly an early borrowing from a Northern Cordilleran language, in that it refers to only four bundles.

(37) PCo **ʔu:yun* 'a unit of harvested rice bundles'.

(38) PCo, PNoCo, PNuCo **ʔu(:)pu* 'a unit of harvested rice bundles'. This term typically refers to a substantially large number of bundles of harvested rice, one *ʔu:pu* being either 400 or 500 bundles. The Gaddang reflex has an initial verbal prefix *m-*, and means 'to transport or carry goods'. The widespread distribution of these terms suggests the presence of a rice trading network in very early times.

(39) PCo, PSCO, PCCo, PNuCo **ku(:)tim* 'to remove the husk of freshly harvested grain with fingers or teeth in order to eat the grain raw'.

(40) PCo, PNoCo, PSCo, PCCo, PKI, PNuCo **ʔa:laŋ* 'granary'.

(41) PCo **ʔaga:maŋ* 'sleeping house for unmarried people'. Although glossed as 'granary' in Ilokano, Tukukan, Lepanto, and in some other Bontok dialects, the meaning given for the Ifugao cognates is probably the original meaning, since *ʔa:laŋ* has a much wider distribution with the meaning 'granary'.

(42) PCCo, PKI, PNuCo **ʔu:lut* 'to strip grain from rice panicles by pulling them through one's hands; straw that is left after grains have been stripped off'.

(43) PPh **bayu* 'to pound rice'; PCo, PNoCo, PSCo, PCCo, PKI, PNuCo **ba:yu* 'to pound with pestle and mortar for the purpose of removing husk from grain'. One other term has been reconstructed with this meaning for Proto Philippines: **lebek* (Zorc 1971). In Cordilleran languages, definitions of the latter usually imply beating for the purpose of crushing, for example, Lpn *lebek* 'to beat small, to grind, to pound'; Ilk *lebbek* 'to pound, smash, crush in a mortar with a pestle'. In Bontok the term is used for a ceremonial rice pounding during a wedding ceremony. The rice is placed in an elongated trough-like mortar, the *lebkan*, which according to local tradition was originally used for pounding and crushing sugarcane, prior to the introduction of cane mills. I suggest that the term may have originally meant 'to pound sugarcane'.

(44) PAn **lesuŋ* 'mortar'; PCo, PCCo, PKI, PNuCo **lusuŋ* 'mortar, for pounding grain'.

(45) PPh **qaSelu*; PCo, PNCo, PSCo **ʔaʔlu*; PCCo, PKI, PNuCo **ʔalʔu* 'pestle'.

(46) PNuCo **ʔasud* 'method of pounding in which two or more persons pound by alternating their pestle strokes'.

(47) PCCo **bina:yu* 'pounded rice'.

(48) PPh **(O,q)eta* 'unhusked rice kernel; rice husk'; PCo, PNoCo, PSCo, PCCo, PKI, PNuCo **ʔeta* 1. 'raw, uncooked', 2. 'an unhusked kernel of rice mixed with husked or cooked rice'.

(49) PPh **tahep* 'winnnow rice'; PCo, PNoCo, PSCo, PNuCo **taʔep* 'to winnow; husk of grain'.

(50) PPh **bijawu*; PCo **biga:ʔu*; PS-CCoX **liga:ʔu* 'winnowing basket'.

(51) PAn **lu(N)[t]uh* 'cook'; PCo **lu:tu* 'to cook by boiling; ripe'; PS-CCo **lu:tu* 'to cook by boiling, especially to cook rice; ripe'.

(52) PNuCo **teleb* 'to pour off excess water from cooking rice'.

(53) PCo, PNoCo, PCCo, PKI, PNuCo **ʔa(:)sug* 'to place a pot on the fire, for the purpose of cooking rice'.

(54) PNuCo **ba:new* 'to serve cooked food'.

An examination of the above sets of terms leads to the conclusion that the speakers of Proto Cordilleran not only knew about rice, but it was harvested, stored in granaries, pounded with a pestle and mortar to remove the husk, and cooked for food. Terms both in Cordilleran and non-Cordilleran languages for cooked rice simply translate as 'food', or 'that which is eaten' (Tag *kanin*, Bon *makan*), or 'that which is cooked' (Ilk *inapoy*, Ibl *nilutu*, Itg *ʔasug*) and imply that at least for these groups, rice has been the primary food source for a considerable period of time. However, the fact that no single term for cooked rice can be unambiguously reconstructed for Proto Cordilleran, might imply that at earlier times, other crops such as taro and millet may have formed a much more prominent part of the diet than they do today.

The speakers of the parent language of the South-Central Cordilleran subgroup appear to have been cultivators of wet rice in pondfields. Terms for the pondfield itself, for levelling fields, and the social groups formed for this purpose, for the mud dike used to retain water in the pondfield, and most significantly the term for the planting of rice seedlings are reconstructable to this time depth. There is no reason to believe from this though that these people were builders of walled pondfield terraces of the type which are ubiquitous today in much of the Cordillera. There is certainly no reason either to believe that they were living in the mountains.

At least some of the speakers of Proto Nuclear Cordilleran, however, were clearly masters of walled, pondfield terrace construction in a mountainous environment. They had mastered the art of building rock retaining walls, and had special terms for the foundation row of rocks in the terrace wall, and for protruding rocks built into the wall as a stairway. They also had a term for the mountainside abutting the inner edge of the terrace. They knew how to construct irrigation canals to bring water from higher elevations to the pondfields, and had a term for the breach in a pondfield dike to permit water to flow to terraces below. Terms for the bundling and counting of large amounts of rice were also used, and trading between groups probably occurred.

It is significant that the majority of the terms that are related to pondfield construction do not appear to have cognates outside the Nuclear Cordilleran languages. The few that do have external cognates do not apply specifically to rice terrace construction in the external languages, from which we may infer that the ability to shape the local terrain was a skill that was locally developed and mastered, not one that was brought into the area by some immigrant population with a knowledge of rice terrace construction.

It is important to note that pondfield construction had apparently developed prior to the dispersal of the Nuclear Cordilleran languages. There is no way linguistically to determine what that time frame was, but given the considerable internal differentiation of each of the languages in the family (each is a complex dialect chain with poor mutual intelligibility between the major population centres) and the syntactic and phonological differences between each of its members, I would think that at least fifteen hundred to two thousand years must have passed since Proto Nuclear Cordilleran began to split up.

Archaeological studies by Bodner in the village of Tukukan, Central Bontoc, lead her to a somewhat more conservative view of the role of rice in early Cordilleran populations than the one outlined above. Her analyses of excavated materials established (among others) the following: permanent villages were established in the Bontoc area by at least AD 570-680;

the inhabitants were spinning, weaving, using stone tools, earthenware ceramics and wooden products; they were able to acquire iron through a limited trading system; they possessed the technology for constructing stone walls; they practiced agriculture and augmented it with hunting and gathering; rice was not a major part, if present at all, of the subsistence base in AD 570-680 nor by AD 1410-1450; however grain, legumes, sorghum, millet, root crops and sugarcane probably were (Bodner 1986:422). She further states (p.226), "That rice was known is not questioned, but that it was grown by all groups which knew of it at the time of Proto Cordilleran or even Proto Nuclear Cordilleran is highly unlikely, particularly in light of the crop's uneven distribution throughout the Cordillera during historic times".

Bodner (p.210) further cautions that, "terracing must not be inextricably linked with irrigation, irrigation must not be considered synonymous with mountain stream diversion and pondfields must not be concatenated with wet rice cultivation. Harvesting and storing in bundles is a practice applied to rice and millet alike. Similarly, preparation by pounding in a mortar and winnowing is not necessarily associated with rice and only rice".

Bodner has assembled a substantial set of data in support of the above hypotheses. It is clear that the distribution of pondfield terraces was almost certainly far more restricted in prehistoric times than it is today. It is also clear that even within what is today a single language area, different ecological conditions demanded flexibility in the types of crops that are grown. She has furthermore made a convincing case for a far more extensive use of pondfield taro and of grains other than rice in prehistoric times than is common in most Cordilleran areas today.

Nevertheless she states (p.465) that, "Without securely dated rice remains in archaeological contexts throughout insular Southeast Asia, its presence, absence, and importance in the early Austronesian crop inventory remain matters for speculation...". She furthermore cautions "reservations are in order with regard to accepting the linguistic argument for its early dominance".

The linguistic evidence should, however, dispel any question of whether or not rice was present in the early Austronesian crop inventory. It will remain a matter for speculation only as long as the linguistic evidence is ignored. It was reconstructed for Proto Austronesian long before the recent discoveries of the great antiquity of rice in southern China, at least two thousand years prior to the estimated period during which Proto Austronesian developed in Formosa. Bodner recognises that rice must have been known by speakers of early languages in Northern Luzon. The major question that arises then is whether there is any linguistic evidence that early settlers in the high Cordillera (probably speakers of Proto Nuclear Cordilleran) were practicing rice cultivation, as their Proto Cordilleran ancestors undoubtedly were, or was the practice discontinued until comparatively more recent times when rice varieties which could prosper in the high mountain environments had evolved? The answer is a qualified yes. It is quite clear, as indicated above, that Proto Nuclear Cordilleran speakers were pondfield terrace builders. Whether or not they were used for rice cultivation at the time of the dispersal of the language groups that constitute the Nuclear Cordilleran subgroup depends on whether the terms that uniquely identify rice cultivation can be shown to be inherited from earlier protolanguages, or whether they can be shown to be borrowings from some non-Nuclear Cordilleran group, from whom they would presumably have brought in the seed, the plants or the technology associated with rice agriculture.

A number of terms, such as *ba:yu* 'pound rice', and *ʔa:laŋ* 'granary', could be either inherited or borrowed, since no diagnostic sound change occurred in these words which would enable us to make such a determination. There are, moreover, a few terms which do not have the expected reflexes, and may be borrowed. One of these is *daga:mi* 'rice straw' in which *g* appears as a reflex of **R*, rather than *l*, the expected reflex in Central and Southern Cordilleran languages. However this form shows irregular reflexes in a number of different languages, and its reconstruction is uncertain. There are a number of forms which are reconstructed with **R*, which reflect *g* in all of the Cordilleran languages, including Ilokano, where the expected reflex is *r*, and this form appears to be one of them.

Another such form is the widespread term reconstructed as PAn **beRas* 'husked rice'. Isneg (Northern Cordilleran) has the correct reflex – *bʌggat*, as does Pangasinan *belas*, but Ilokano does not, having irregular reflexes both for **e* as well as for **R*, *bagas* (expected *berras*). Both Bontok *begas*, and Ifugao *bogah* show a medial *g* instead of *l*, and therefore appear to be be borrowings. But, this form is also of interest because in the Nuclear Cordilleran languages its primary meaning is not 'husked rice' but 'substance, kernel, contents' and with appropriate affixes (*namgas, nabgas*, etc.), it means 'to bear fruit'. It is no longer primarily associated with rice.

These extended meanings are also found in Isneg, and presumably in other Northern Cordilleran languages. The complete dictionary definition for Isneg *bʌggat* (Vanoverbergh 1972:109) is: "'Rice (when pounded or unpounded); seed, kernel; fruit; tuber, rhizome, bulb, corn; substance, contents'; *mʌgbʌggat* 'To bear fruit'; *nʌbgat* 'Well-filled, full of grain'; *tʌŋʌbgat* 'One kernel'; *ʌgbʌggʌtan* 'A basket used for storing grain'; *bʌggat udan* (lit. 'substance of rain'); 'Hail' *pʌmgʌtan* 'The female tutelary spirit of Sabangan'". The form is interesting because it suggests that Nuclear Cordilleran could have borrowed the term (at a very early date) from Northern Cordilleran, prior in fact to the development of consonant gemination following **e*, a rule which is shared by many of the languages in this subgroup, as well as by Ilokano. But if it was borrowed, it was not borrowed with the meaning 'husked rice', so it does not throw any light on the issue at hand.

But the majority of terms given above are clearly not borrowed from any lowland language. The word for the rice plant itself, if borrowed after the sound changes that characterise the Southern and Central Cordilleran languages would have a final *-ay*, not *-ey*, as have scores of such words that have been recently borrowed. Similarly, PNuCo *tu:ned* 'to transplant rice seedlings' could not be a recent borrowing from any Northern Cordilleran language where **e* is generally reflected as *a*. Nor, for the same reason, could PNuCo **penal* 'rice seed; to sow a rice seed bed' be a borrowing from any lowland language. It is directly inherited from PCo **penar* 'rice seed'.

4. CONCLUSION

In summary, there seems to be conclusive linguistic evidence that pondfields were being constructed by the people who spoke the language ancestral to the Central and Southern Cordilleran languages, and that the Central Cordilleran speakers who migrated into the higher regions of the mountains developed the techniques of terraced pondfield construction, so that by the time of Proto Nuclear Cordilleran, they had become masters of the construction of rock walled terraces and of complex irrigation systems. What those terraces were used for is not quite so clear. That they were probably used for rice in at least some areas, is suggested by a number of terms which could also perhaps have applied to other, non-irrigated crops.

But the reconstruction at this level of terms for the rice plant itself, rice seed and rice seedling, could only apply to pondfield rice agriculture. That terraced pondfields may also have been used for taro cultivation in some areas is not contraindicated by any of the linguistic evidence, and seems to be supported by some of the ethnohistorical facts.

APPENDIX 1: LIST OF SYMBOLS AND ABBREVIATIONS

<A>	Assimilation
B	Borrowed form
<BF>	Back formation
<D>	Dissimilation
<E>	Epenthesis
<F>	Fused form
<G>	Gemination
<M>	Metathesis
<P>	Prothesis
X	Innovated form
Alt	Alta
AltN	Northern Alta
AltS	Southern Alta
Amg	Amganad Ifugao
Art	Arta
Att	Atta
Blw	Balangaw
Bon	Bontok (Guinaang)
Btd	Batad Ifugao
Byn	Bayninan Ifugao
DgtC	Casiguran Dumagat (Agta)
DgtEC	Eastern Cagayan Dumagat
DgtP	Palanan Dumagat
DgtU	Umiray Dumaget
Gad	Gaddang
Ibg	Ibanag
Ibl	Inibaloi
Ifg	Ifugao
Ilk	Ilokano
Ilt	Ilongot
Isg	Isneg
Isi	Isinai
Itg	Itneg
Itw	Itawis
Kbn	Kabayan Inibaloi
Kla	Kalinga
Kln	Kallahan
Kng	Kiangan Ifugao
Knk	Kankanay (Botak)
Lpn	Lepanto Kankanay
PAn	Proto Austronesian
PCCo	Proto Central Cordilleran
PCo	Proto Cordilleran
PHF	Proto Hesperonesian-Formosan
PIf	Proto Ifugao
PKI	Proto Kalinga-Itneg
Png	Pangasinan
PNoCo	Proto Northern Cordilleran
PNuCo	Proto Nuclear Cordilleran
PPh	Proto Philippines
Prn	Paranan
PS-CCo	Proto South-Central Cordilleran
PSCo	Proto Southern Cordilleran
Sgd	Sagada Kankanay
Tag	Tagalog
Tuk	Tukukan Bontok
Yog	Yogad

APPENDIX 2: DATA

I. TERMS RECONSTRUCTABLE TO PROTO CORDILLERAN

(1) PCo **ʔaga:maŋ* 'sleeping house for unmarried people'
Ilk *ʔaga:maŋ* 'granary'
Kng *ʔaga:maŋ* 'a sleeping house for boys and girls'
Btd *ʔaga:maŋ* 'a sleeping house for unmarrieds'
Tuk *ʔagamaŋ* 'granary'
Lpn *ʔaga:maŋ* 'granary'

(2) PCo **ʔa:ni* 'to harvest' (< PHF **qániH* [Zorc 1971], PAn **a(Nn)i* 'harvest' [Blust 1971])
Ilk *ʔa:ni* 'to harvest crops, to reap crops'
Isg *ʔa:ni* 'to harvest, to reap rice'
Gad *ʔa:ni* 'harvesting, said of rice'
Kla *ʔa:ni* 'to harvest'
Bon *ʔa:ni* 'to harvest rice or other grain-bearing plants; to gather seeds from certain weeds'
Lpn *ʔa:ni* 'to harvest; to reap'

(3) PCo **ʔaʔlu* 'pestle' (< PHF **qaSelu* [Zorc 1973])
Isg *ʔallo* 'pestle for pounding rice, etc.'
Gad *ʔa:lu* 'pestle'
IlkX *ʔalʔu* <M> 'pestle'
PSCo **ʔaʔlu*
Png *ʔalu* 'pestle'
Ibl *daʔdu* 'rice-pounding pestle' (< **laʔlu*, cf. Ifg *lalu*)
PCCoX **ʔalʔu* <M>
Isi *ʔeʔu* 'pestle'
Kla *ʔalʔo* 'pestle' (Limos Kalinga *ʔallu*)
ItgX *ʔalsuŋ* <F> (*ʔalʔu* + *lusuŋ*) 'pestle'
PIfX **lalu* <P> 'pestle' (possibly borrowing from Pre-Ibl **laʔlu*)
Blw *ʔalo* 'pestle'
Bon *ʔalʔu* 'pestle'
Tuk *ʔalʔu* 'pestle'
Knk *ʔa:ʔu* 'pestle'
Sgd *ʔa:ʔu* 'pestle'; also *ʔalʔu*
LpnB *ʔalʔu* 'pestle'

(4) PCo **ʔa:laŋ* 'granary'
Isg *ʔʌ:laŋ* 'granary'
Gad *ʔa:laŋ* 'granary'
Ibl *ʔalaŋ* 'a house of good construction – especially spoken of that which is not for daily living (as a house separate from the kitchen for sleeping); also, in some places, of well constructed houses in the fields as granaries'
Isi *ʔeaŋ* 'granary'
Gad *ʔa:laŋ* 'granary; front'
Kla *ʔa:laŋ* 'rice house, granary'
Itg *ʔa:laŋ* 'granary'
Kng *ʔa:laŋ* 'rice granary'
Btd *ʔa:laŋ* 'a granary, esp. for rice; to place rice sheaves in a rice granary'
Blw *ʔa:laŋ* 'granary'
Bon *ʔa:laŋ* 'rice granary'

(5) PCo **ʔasud* 'to help one another in working' (< PPh **ʔasud* [Zorc 1973])
Ilk *ʔasud* 'to help one another, pounding rice, preparing timber, etc.'
IblX *ʔassud* <G> 'to help one another thresh rice: usually by two or more standing at the mortar and pounding in alternate strokes'

PNuCo **ʔasud* 'method of pounding in which two or more persons pound by alternating their pestle strokes'
Kng *ʔahud* 'pound rice with two or three pestles in one trough, each pounder acting by turns'
BtdX *ʔahhud* <G> 'to pound in pairs with pestle and mortar, as for two to pound rice, corn, coffee'
Bon *ʔasud* 'method of pounding rice, in which two persons, one on each side of the mortar, alternately strike their pestle into the mortar'
Tuk *ʔasud* 'method of pounding anything in which two or more persons pound by alternating their pestle strokes'
Sgd *ʔasud* 'to pound rice with another person, making alternative strokes'

(6) PCo **ʔa(:)sug* 'to place a pot on the fire, for the purpose of cooking rice'
Isg *ʔatug* 'to place a pot on the fire'; *annatuxa:n* 'any kind of pot or jar, in which rice is being cooked'
Isi *ʔasux* 'cook rice'
Itg *ʔasug* 'rice as food'
Bon *ʔa:sug* 'to cook rice out of doors'

(7) PCo **ʔemay* 'swidden rice plant; unthreshed swidden rice' (< PPh **ɦemay* 'cooked rice' [Zorc 1971] < PAn **Sem(e)y* – 'rice plant' [Charles 1973])
Isg *ʔammay* 'rice on the stalk'
Att *ammay* 'rice on the stalk'
Ibg *ammay* 'unhusked rice; rice plant'
BlwB *ʔammay* 'good'
BonB *ʔammay* 'good, tasty, specifically to children when coaxing them to eat'

(8) PCo **ʔeta* 1. 'raw, uncooked', 2. 'an unhusked kernel of rice mixed with husked or cooked rice' (< PHF **qeCá* 'unhusked rice kernel; rice husk' [Zorc 1971]; PHF **Hátaq* 'raw' [Zorc 1971])
Art *(ma-)ata* 'raw, uncooked'
Isg *ʔatta* 'an unhusked kernel of rice mixed with husked or cooked rice'
Gad *ʔatta* 'rice bran'
Alt *(ma-)ata* 'raw, uncooked'
Png *ʔeta* 'raw, uncooked, or undercooked'
Isi *ʔota* 'grain of unhusked rice'
Kla *ʔota* 'unhusked grains in pounded rice'
Kng *ʔota* 'grains of unhusked rice left after pounding'
Btd *ʔota* 'grains of unhusked rice remaining after pounding'
Bon *ʔeta* 'grains of unhusked rice left after pounding'
Tuk *ʔeta* 'one grain of rice, millet, sorghum, or Job's-tears, still unhusked after pounding'
Sgd *ʔeta* 'unpounded rice which remains mixed in with pounded rice'
Lpn *ʔeta* 'grains of unhusked rice left after pounding'

(9) PCo **ʔi:tiŋ* 'a unit of harvested rice bundles'
Isg *ʔi:siŋ* 'a bundle of rice of the usual size; each consists of four *batta*ʔ'
KlaB *ʔi:tiŋ* 'four bundles of harvested rice'
Bon *ʔi:tiŋ* 'a unit of harvested rice consisting of five bundles'

Lpn *ʔi:tiŋ* 'five sheaves, of *palay*, etc.'

(10) PCo **ʔu(:)pu* 'a unit of harvested rice bundles'
Isg *(m)o:pɔ* 'one hundred bundles of rice'; also *ŋo:po*
Gad *(m)u:fu* 'to transport or carry goods'
Kng *ʔu:pu* 'rice bundle unit of measurement'
Bon *ʔupu* 'measurement of harvested rice, consisting of ten *betek*, or five hundred bundles'
Tuk *ʔupu* 'measurement of harvested, bundled grain (i.e. five hundred bundles of millet or rice)'

(11) PCo **ʔu:yun* 'a unit of harvested rice bundles'
Isg *ʔu:yon* 'one hundred bundles of rice'
Kla *ʔu:yun* 'four hundred bundles of harvested rice'
Lpn *ʔu:yun* 'band; anything used to bind a load of wood; five hundred sheaves'

(12) PCo **ba:yu* 'to pound with pestle and mortar for the purpose of removing husk from grain' (< PPh **bayu*, PAn **bayuH* 'pound rice' [Zorc 1971])
Isg *bʌ:yo* 'to pound rice'
Gad *ba:yu* 'pounding of rice or corn'
Ilk *ba:yu* 'to pound rice, in a mortar; to husk it'
Png *ba:yu* 'to pound'
Ibl *bayu* 'threshing rice or such using mortar and pestle'
Kla *(mam-)ba:yu* 'pound rice'
Itg *(mam-)bʌ:yu* 'pound rice'
Kng *ba:yu* 'pound rice with a pestle'
Btd *(mum-)ba:yu* 'to pound anything'
Amg *bayu:(-won)* 'pound rice'
Byn *(mum-)ba:yu* 'pound rice'
Blw *ba:yu* 'pound rice'
Bon *ba:yu* 'pound with pestle and mortar'
Tuk *bayu* 'to pound anything'
Knk *(men-)ba:yu* 'pound rice'
Sgd *ba:yu* 'to pound rice'
Lpn *ba:yu* 'pound; husk'

(13) PCo **bɐŋel* 'to press or squeeze together' (> PNuCo **bɐŋel* 1. 'bundle', 2. 'a bundle of harvested grain')
Ilk *bɐŋl(-an)* 'to throng, press upon, crowd upon'
Isg *baŋŋal* 'a kind of squeezer used for extracting milk from coconut meat or honey from honeycombs'
GadX *bʌŋŋad* 'tether'

(14) PCo **bɐtek* 'bundle, as rice; the tie used to bundle things together'
Isg *batta?* 'strip of bamboo or bark; a band for tying reaped rice into bundles; a small bundle of rice, one fourth of an *ísiŋ*'
Gad *bʌttèk* 'a bundle of rice'
Ilk *bettek* 'band, tie, string; a strip of bamboo, vine, etc. used to bind reaped rice into bundles'; *saŋkabtek* 'one bundle of *palay*, in some districts, four, five, or six bundles'
Ibl *betek* 'bundle, as of rice or wood'

Kla *botok* 'bundle tied'
Kng *botok* 'rice bundle'
Btd *boto?* 'to harvest rice; material for binding rice into bundles; a bundle of rice'
Blw *bita?* 'harvest', also: *bata?*
Bon *betek* 'anything used for binding; a measurement of bundled rice, ten *?i:tiŋ*, i.e. fifty bundles'
Tuk *betek* 'a large bundle of wood, rice, sweet potato leaves, etc.; the vine, bamboo, rattan, string, etc. used to tie such a bundle together'
Sgd *betek* 'a number of bundles of rice'
Lpn *betek* 'bind into bundles; sheaves'

(15) PCo **biga:?u* 'winnowing basket' (< PPh **bijawu* [Charles 1973], PHF **bijau* [Zorc 1971] 'winnowing basket' > PS-CCoX **liga:?u*)
Ilk *biga:?u* 'winnow, winnowing basket'

(16) PCoX **daga:mi* 'rice stubble' (< PHF **ZaRami* [Zorc 1971], PAn **ZeRami(hO)* [Dyen 1951] 'stubble')
Isg *dʌxʌ:mi* 'straw of rice'
Kbn *shagami* 'rice stalks left in the field after the grain has been harvested'
Kla *daga:mi* 'rice stubble, straw'
Kng *daga:mi* 'rice straw'
Btd *daga:mi* 'rice stalks remaining in a field after harvesting rice'
Bon *daga:mi* 'rice straw'

(17) PCo **dayaket* 'general term for any variety of glutinous rice, cassava, or taro '
Isg *de:kat* 'a general name for several varieties of soft and oily rice'
Gad *de:kat* 'cake; glutinous rice'
Ilk *di:ket* 'several varieties of soft, oily rice'
Kla *de:kot* 'sticky or glutinous rice'
Kng *dayakot* 'general term used for any variety of sticky rice'
BtdX *daya??ot* <G> 'glutinous rice'
Bon *dayaket* 'general name for the various varieties of glutinous rice or cassava *(dayket)*'
TukX *dayyaket* <G> 'sticky manioc, rice, millet, avocado '
Lpn *dayket* 'variety of dark-coloured *palay*, or taro with red shoots'

(18) PCo **gi:waŋ/gu(:)waŋ* 'to make an opening or hole through; to make a breach in' (> PNuCo **gu(:)waŋ* 'breach in a pondfield dike')
Ilk *gi:waŋ* 'to make an opening or hole through; to make a breach in '

(19) PCo **ku(:)tim* 'to remove the husk of freshly harvested grain with fingers or teeth in order to eat the grain raw'
Ilk *kutim* 'to peel with teeth, in the manner of squirrels feeding on nuts'
Ibl *kutim* 'to remove the hulls from the rice with the fingers and teeth in order to eat the grain raw – spoken of the manner of rats and birds or of children who fancy freshly-harvested rice'
Kng *ku:tim* 'to rub out the grains of rice ears before or during the harvest, that is, when the grains are still soft and are edible'
BtdX *gutum* 'to nibble, pinch between the teeth'

Bon *ku:tiŋ* 'husk grains of unripe rice between the fingers for eating raw; unripe rice picked for eating'
Tuk *kutiŋ* 'the husk of unripe or ripe but still soft rice, Job's-tears or sorghum (but not millet) removed with the teeth or fingers'
Lpn *ku:tiŋ* 'peel (young palay)'

(20) PCo **lusuŋ* 'mortar, for pounding grain' (< PHF **lesúŋ* [Zorc 1971], PAn **lesuŋ* [Dempwolff 1938] 'mortar')
Isg *(ʔa)ltoŋ* 'mortar for pounding rice, etc.'
GadX *lu:tuŋ* 'trough (a long hollowed-out log used for holding feed for hogs)'
GadX *(qal)lu* 'mortar for betel-chew'
Kla *lusuŋ* 'mortar'
ItgX *ʔalʔul* <F> (*ʔalʔu* + *lusuŋ*) 'rice mortar'
Blw *lohoŋ* 'rice mortar'
Kng *luhoŋ* 'mortar, primarily used for pounding rice'
Btd *luhuŋ* 'mortar'
Amg *luhoŋ* 'mortar'
Byn *luhuŋ* 'mortar'
Bon *lusuŋ* 'mortar, primarily used for pounding rice'
Tuk *lusuŋ* 'mortar'
Knk *lusuŋ* 'rice mortar'
Sgd *lusuŋ* 'mortar'
Lpn *lusuŋ* 'mortar'

(21) PCo **lu:tu* 'to cook; ripe' (< PHF **lú(n)tuq* [Zorc 1971], PAn **lu(N)[t]uh* 'cook' [Dempwolff 1938])
Isg *lu:to* 'ripe; cooked'
Gad *lu:tu* 'cooking; ripe'
Ilk *lu:tu* 'to cook, in general'
Png *lutu* 'to cook'; *nilutu* 'cooked rice or other food'
Ibl *dutu* 'to cook, a generic term'
PKIX **ʔu:tu* <**l* to *ʔ*> 'cook'
Btd *lu:tu* 'cook by boiling'
Kng *lu:tu* 'cook by boiling, especially to cook rice'
BlwX *ʔu:to* <**l* to *ʔ*> 'cook'
Bon *lu:tu* 'cook by boiling, especially to cook rice'
Tuk *lutu* 'to cook something completely'
SgdX *ʔu:tu* <**l* to *ʔ*> 'to cook, especially to boil rice'
Lpn *lutu:(-an)* 'large pot'

(22) PCo **pa:jey* 'pondfield rice plant; unthreshed pondfield rice' (< PAn **pa:jey* 'rice plant' [Charles 1973])
Gad *pa:y* 'rice'
IbgB *palay* (Tag) 'unhusked rice'
Ilk *pa:gay* 'rice'
Png *pagey* 'rice plant'
Ibl *pagey* 'rice'; *palay* 'rice in the field or harvested that is still on the stalk'

Kla *pa:goy* 'rice (unhusked)'
Itg *pa:gey* 'rice in sheaf'
Kng *pa:ge* 'rice growing in the fields, or bundles of rice ears'
Btd *pa:guy* 'a panicle of rice with its stalk'
Blw *pa:gɨy* 'rice on the stalk'
Bon *pa:gey* 'unthreshed rice; rice plant'
Tuk *pa:gey* 'rice plant still on the stalk'
Sgd *pa:gey* 'unthreshed rice'
Lpn *pa:gey* 'rice on the stalk; unhusked rice'

(23) PCo **pakpak* 1. 'to slap, to beat with a flat surfaced instrument', 2. 'to fasten two flat surfaces together' (< PPh **pakpak* 'slap together; clap' [Zorc 1971]; cf. PHF **pakpak* 'wing' [Zorc 1971]; > PNuCo **pakpak* 1. 'to fasten two flat surfaces together', 2. 'to stick mud on something, as the top of a retaining wall to prevent leakage')
Ilk *pakpak* 'to slap with the open hand, the flat of a sword, etc.'
Ibl *pakpak* 'to cause s.th. to adhere to s.th. else'

(24) PCo **pa:naj* 'level area, plain' (cf. PHF *pa(n)taR* 'level area' [Zorc 1971]; > PS-CCo **pa:nad* 'level area; to level')
Isg *pa:nag* 'plain, level land'

(25) PCo **payaw* 'pondfield'
Gad *payaw* 'rice field'
Ibl *payew* 'rice field, paddy, spoken of that which is level and potentially can be flooded'
Kla *payaw* 'rice field'
Kng *payo* 'pondfield' *(payaw)*
Blw *payaw* 'pondfield'
Bon *payew* 'pondfield'
Tuk *payew* 'pondfield'
Lpn *payew* 'rice field'

(26) PCo **penar* 'rice grains' (> PNuCo **penal* 'rice seed; to sow a rice seed bed')
Isg *pannar* 'detached grains and spikelets of rice in and around the *sixay* [hut built in rice fields]'

(27) PCo **pideR* 'be adjacent to' (> PNuCo **pidel* 'that part of a pondfield which is adjacent to the base of the retaining wall that supports the pondfield above it')
Ilk *pideg* 'to push an object against another, to put in contact with'

(28) PCo **rakem* 'harvesting knife'
Ilk *rakem* 'a reaper's knife, used to cut rice below the ear'
Isg *rakam* 'the reaper's knife'
Kla *lakom* 'knife used for harvesting'
Bon *lakem* 'a harvesting knife'
Lpn *lakem* 'a small instrument used to reap *palay*'

(29) PCo **taʔep* 'to winnow; husk of grain' (< PPh **tahep*, PAn **taSép* 'winnow rice' [Zorc 1971])
Gad *ta:p* 'winnowing (of rice)'
Ilk *taʔep* 'chaff, glume, husk, hull; to winnow'

Png *ta?ep* 'winnow rice'
Ibl *ta?ap* 'winnow rice'
KlaX *topa* <BF> 'to winnow'
Kng *ta?op* 'winnow rice; rice husks'
Btd *taap* 'winnow rice'
Blw *tiip* 'winnow'
BonX *tapa* <BF *tap?an*> 'winnow rice; rice husks'
TukX *tapa* <BF> 'to winnow anything; chaff from coffee, grain that is winnowed'
Lpn *taep* 'winnow; rice husk'

(30) PCo **teneŋ* 'division in a field' (> PNuCoX **batneŋ* 'stone boundary marker in a field; mud dike in a pondfield'; possibly from **batu-n teneŋ* 'stones which are boundary markers')
Isi *tannaŋ* 'division in a field'

II. TERMS RECONSTRUCTABLE TO PROTO SOUTH-CENTRAL CORDILLERAN

(31) PS-CCo **?ugbu* 'an exchange labour working group'
IblX *?ubbu(wan)* 'cooperative work, i.e. help given to a person that is repaid in kind, as planting, harvesting, threshing'
PIfX **?ubbu* <A> 'working group'
Kng *?ubbu* 'group work; number of workers (e.g. women) who form a more or less permanent group accustomed to work together during harvest time'
Btd *?ubbu* 'a working group of two or more persons sharing the work of each member'
BonX *?ubbu* <A> 'working group of married and single men from one ward with single women from one girls' dormitory'
Tuk *?ugbu* 'working group; exchange labour'
SgdX *(?ub-)?ubbu* <A> 'joining into groups to do the work of each member of the group in turn'
Lpn *?ugbu* 'help, aid one another'

(32) PS-CCo **b(a,e)neŋ* 'dike for retaining water' (> PNuCo **baneŋ* 1. 'top section of a pondfield terrace retaining wall', 2. 'pondfield')
Ibl *beneŋ* 'dam, dike for retaining water'

(33) PS-CCoX **liga:?u* 'winnowing basket' (< PCo **biga:?u*)
PngB *biga?u* (Ilk) 'winnowing basket'
Ibl *diga?u* <A> 'winnowing tray' (syn. *khiyag*)
KlaX *?iga:?u* <*l* to *?*> 'winnowing basket (without holes)'
Kng *liga:?u* 'winnowing basket'
Btd *liga:?u* 'winnowing basket'
Blw *ligaw* 'winnowing basket'
Bon *liga:?u* 'winnowing basket'; also *lig?u*
Tuk *lig?u* 'winnowing basket'
Lpn *liga:?u* 'fan'

(34) PS-CCo **pa:nad* 'level area; to level' (< PCo **pa:naj* 'level area, plain')
Ibl *panad* 'to do the last fine bit of levelling in making a rice field or in making the place for a wall foundation'

Kla *pa:nad* 'a level area'
Kng *pa:nad* 'hard ground under the mud of rice field terraces'
Btd *pa:nad* 'to level a ground area as for a house site, pondfield'
Blw *pa:nad* 'to level for a house'
Bon *pa:nad* 'hard ground under the cultivated surface of a pondfield, level base; the spirit which resides in a pondfield or a pasturing field for water buffalo'
Tuk *panad* 'hard earth layer beneath mud of pondfield; any flat surface on the ground; to make such a surface, to level'
Sgd *pa:nad* 'to level a field'
Lpn *pa:nad* 'to level; smooth; smoothen; make even, smooth, for instance, a field'; also: *pantag* 'flat, plain; to arrive in open country'; *paniag* 'flat, plain'; *penad(napnad)* 'plain, flat spot, open country'

(35) PS-CCo **tu:ned* 'to transplant rice seedlings'
Ibl *tuned* 'to plant rice'
Btd *tu:nod* 'plant rice seedlings'
Kng *tu:nod* 'transplant the rice seedlings'
Bon *tu:ned* 'plant rice seedlings'
Tuk *tuned* 'to transplant rice seedlings'
Lpn *tu:ned* 'transplant'

(36) PS-CCo **tupiŋ* 'stone wall' (> PNuCo **tupiŋ* 1. 'stone retaining wall', 2. 'any orderly heap of objects')
Ibl *tupiŋ* 'stone wall'
ItgX *tupin* < **ŋ* to *n* > 'stone wall'

III. Terms reconstructable to Proto Central Cordilleran

(37) PCCo **ʔa:lak* 'irrigation canal' (cf. PPh **qaRak* 'lead' [Zorc 1971])
Kla *ʔa:lak* 'irrigation'
Btd *ʔa:laʔ* 'to channel water by making an irrigation canal'
Bon *ʔa:lak* 'water race; canal'
Tuk *ʔalak* 'irrigation ditch'

(38) PCCo **ʔu:lut* 'to strip grain from rice panicles by pulling them through one's hands; straw that is left after grains have been stripped off' (cf. PPh *huRut* 'tighten, squeeze; massage' [Zorc 1971])
Kla *ʔu:lut* 'rice stalks'
Kng *ʔu:lut* 'remove grain from rice panicles by pulling them through one's hands'
Btd *ʔu:lut* 'to pull a rice panicle through the closed left fist, butt end first to strip off the grain'
Bon *ʔu:lut* 'remove grain from rice panicles by pulling them through one's hands'
Tuk *ʔulut* 'straw that is left after grains are pulled by hand'
SgdB *ʔalu:lut* 'to remove rice grains from the stem with the hands'

(39) PCCo **ʔu:pak* 'bark of a tree, peeling' (< PPh *úpak* [Zorc 1971]; > PNuCoX **ʔu(:)pek* 'rice bran; what remains after rice has been pounded and winnowed')
KlaX *ʔupik* 'outer skin (of plant)'

(40) PCCo **bina:yu* 'pounded rice'
Ilt *bina:yu* 'pounded rice'
Kla *bina:yu* 'pounded rice'
Itg *bina:yu* 'pounded rice'
Bon *bina:yu* 'pounded rice'

(41) PCCo **dugi* 'husk of rice'
Kla *dugi* 'husk of rice; rice bran'
Itg *dugi* 'husk of rice'
Blw *dugi* 'husk of rice'
AmgX *dugi(h)* <E> 'husk of rice'
Btd *dugi* 'husk of rice'
Byn *dugi* 'husk of rice'
SgdX *digi* <**u* to *i*> 'rice husk'; *degyan* 'place for pounding rice and piling husks'

IV. TERMS RECONSTRUCTABLE TO PROTO NUCLEAR CORDILLERAN

(42) PNuCo **ʔa:deg* 'to fill with stones and dirt, as the space behind a stone wall as a terrace is being constructed'
Btd *ʔa:dog* 'to fill in space behind a stone wall as one builds it up'
Bon *ʔa:deg* 'to be covered with debris, of a pondfield after the collapse of a higher terrace wall'
Sgd *ʔa:deg* 'to throw waste on, cover, fill, to impair with dirt, stones, etc.'

(43) PNuCo **ʔetʔet* 'pack holes with mud' (cf. Ilk *ʔetʔet* 'tight; cause to become tight')
Kng *ʔotʔot* 'fill up gaps with mud, e.g. gaps between the large stone which covers a grave, and its borders'
Bon *ʔetʔet* 'inner side of the dike of a pondfield'
Tuk *ʔetʔet* 'to cement with mud (e.g. pondfield or irrigation ditch)'
Lpn *ʔetʔet* 'stop; cement (with mud, etc.)'

(44) PNuCo **ʔu:gas* 'a grain of unhusked rice which has fallen from a harvested rice stalk '
Kng *ʔu:gah* 'rice ears with their respective thin stalks which happened to fall in the field and on the straw when the women are busy harvesting'
Btd *ʔuga:h* 'grains of unhusked rice dropped from bundles'
Bon *ʔu:gas* 'one grain of unhusked rice; remnant, as the seeds dropped from rice when harvesting or drying'
Tuk *ʔugas* 'any portion of a grain panicle which falls off during harvesting, drying or transport; that which is separated from the rest of the group or collection (e.g. children born after the death of older siblings)'
Lpn *ʔu:gas* 'detached grains; spikes fallen off; what remains after picking up bundles of *palay* from the ground'

(45) PNuCoX **ʔu(:)pek* 'rice bran; what remains after rice has been pounded and winnowed' (< PCCo **ʔu:pak* 'bark of a tree, peeling')
Kng *ʔupok* 'chaff of rice ears, husks of winnowed rice grains'
Btd *ʔu:poʔ* 'rice bran'
Bon *ʔupek* 'rice bran'

Tuk *ʔupek* 'husk of rice, corn, millet, etc. of the finest (thinnest) grade'
Lpn *ʔupek* 'husk of corn'

(46) PNuCo **baneŋ* 1. 'top section of a pondfield terrace retaining wall', 2. 'pondfield' (< PS-CCo **beneŋ* 'dike for retaining water')
Kla *banoŋ* 'rice paddy, rice field'
Kng *banoŋ* 'dike (mostly an earthen dike) of a rice field terrace'
Btd *banoŋ* 'the top of a retaining wall including the inside basin of the retained pondfield'
Bon *baneŋ* 'top section of the dike of a pondfield; by extension, the pondfield itself'
Tuk *baneŋ* 'top of retaining wall of pondfield, on which one can walk; bund'
Sgd *baneŋ* 'top of stone wall, serves as dike to retain water in field'
Lpn *baneŋ* 'lower side; path at the lower side (of a rice field); the opposite of the side from where the water flows'

(47) PNuCo **ba:new* 'to serve cooked food'
Kng *ba:no* 'act of scooping what has been cooked out of the pot *(ba:naw)*'
Btd *ba:naw* 'to dish out cooked food'
Blw *ba:naw* 'serve cooked rice'
Bon *ba:new* 'serve cooked rice'
Tuk *banew* 'wood or bone spatula used for serving cooked solid foods such as mashed taro, rice, millet, etc.; not for liquids or meats'
Lpn *ba:new* 'slops; hogwash; dishwater'

(48) PNuCo **batneŋ* 'stone boundary marker in a field; mud dike in a pondfield'; possibly from **batu-n teneŋ* – 'stones which are boundary markers' (< PCo *teneŋ* 'division in a field')
Kng *batnoŋ* 'low mud dike, forming a boundary within a pondfield'
Btd *batnoŋ* 'to imbed something in soil as a stone in building, a wall, boundary'
BonX *batnuŋ* <**e* to *u*> 'low mud dike, forming a boundary within a pondfield'
TukX *batnuŋ* <**e* to *u*> 'temporary wall within pondfield'
Lpn *batneŋ* 'to curb; to restrain a bank of earth with stones'

(49) PNuCo **beŋel* 1. 'bundle', 2. 'a bundle of harvested grain' (< PCo **beŋel* 'to press or squeeze together')
Kng *boŋol* 'bundle of three, four, or more objects of the same kind which are bound together, or simply held in one hand by their strings if they must be given to somebody'
BtdX *poŋol* <**b* to *p*> 'a group of three or more objects held or tied together; to group objects as described above'
Bon *beŋel* 'one bundle of harvested rice'
Tuk *beŋel* 'one bundle of grain (i.e. rice or millet) on the stalk'
Sgd *beŋe* 'a bundle of harvested rice about an inch in diameter where the stalks are tied below the head'

(50) PNuCo **dubdub* 'movement of soft mud'
Kng *dubdub* 'act of oozing, trickling, applied to muddy or soft dikes of a rice field '
Bon *dubdub* 'be scoured out, as soil is scoured out by running water'
TukX *kubkub* 'act of scouring out soil or rock such as what a stream does to a soil bank'

(51) PNuCo **gu(:)waŋ* 'breach in a pondfield dike' (< PCo *gi:waŋ* 'to make an opening or hole through; to make a breach in')

Kng *gu:waŋ* 'open a breach in a pondfield dike'
Btd *gu:waŋ* 'to open an outlet of dammed water, as in a pondfield'
Bon *guwaŋ* 'open a breach in a pondfield dike'
Tuk *guwaŋ* 'to open a passageway for water to flow in through a dike, irrigation canal or *batnuŋ*'
Lpn *guaŋ* 'breach; gap; open a ditch'

(52) PNuCo **la(:)siŋ* 'a branch of a rice panicle'
Kng *lahiŋ* 'rice ear including the twig supporting it'
Btd *laheŋ* 'a branch of a rice panicle'
Bon *la:siŋ* 'branch of a panicle of rice'
TukX *lusiŋ* <**a* to *u*> 'a branch of a panicle of rice or sorghum'
Lpn *la:siŋ* 'branch of a panicle of rice; *carabao*, in tales'

(53) PNuCo **leweŋ* 'dig deeply'
Kng *lowoŋ* 'small pit or depth in the ground'
Bon *leweŋ* 'cultivate deeply in a pondfield'

(54) PNuCo **li(:)saŋ* 'clods of dried mud or dirt'
Kng *li:haŋ* 'outermost part of a bunch or a heap of mud in a rice field'
Btd *li:haŋ* 'to break up chunks of dried mud in a pondfield'
Bon *lisaŋ* 'dig into a bank of dirt, as to extend the width of a levelled area'
Tuk *lisaŋ* 'a unit or quantity of soil turned by a *taŋlay*, shovel or spade before or without being broken up (e.g. in pondfield, swidden, river bank or elsewhere)'
Lpn *lisaŋ* 'that which is frequently said of these venerated things'

(55) PNuCo **padug* 'rice seedling'
Blw *p(-in-)achug* 'rice seedlings'
Bon *padug* 'to sow rice seed; rice seedlings'
Lpn *padug* 'seedling of palay, to be transplanted or recently transplanted'

(56) PNuCo **pakpak* 1. 'to fasten two flat surfaces together', 2. 'to stick mud on something, as the top of a retaining wall to prevent leakage' (< PCo **pakpak* 1. 'to slap, to beat with a flat surfaced instrument', 2. 'to fasten two flat surfaces together')
Btd *paʔpaʔ* 'to fasten one of the large surfaces of an object to that of another; to stick mud on something'
Blw *paʔpaʔ* 'touch, as of sugar, and then touch something else, leaving some'
BlwB *pakpak* 'beat with an instrument'
Bon *pakpak* 'to fasten together, of two flat surfaces; to stick mud onto a terrace wall to prevent leakage; to remake a path on a terrace wall by packing it with mud'
Tuk *pakpak* 'mud plastered to top of retaining wall of pondfield; to tap, pat, or hit lightly'
Lpn *(na-)pakpak(-an)* 'dirty all over, muddied up to the eyes'

(57) PNuCo **paŋdew* 'stepping stones built into the wall of a pondfield'
Kng *paŋdo* 'stones of retaining stone walls which jut out, are longer than the other ones, and serve as footholds from one terrace to another'
Btd *paŋdaw* 'a stepping stone jutting from a stone wall'
Bon *paŋdew* 'rock built into the wall of a terrace as a stepping stone'

(58) PNuCo **pegnad* 'foundation'
Bon *pegnad* 'the base of a terrace wall'
Lpn *pegnad* 'foundation, groundwork, basis'

(59) PNuCo **penal* 'rice seed; to sow a rice seed bed' (< PCo **penar* 'rice grains')
Kla *(mam-)enal* 'to plant rice; to make a seed bed'
BonX *panal* <**e* to *a*> 'rice seed; to sow a rice seed bed'

(60) PNuCo **pidel* 'that part of a pondfield which is adjacent to the base of the retaining wall that supports the pondfield above it' (< PCo **pideR* 'be adjacent to')
Kng *pidol* 'place close to a retaining stone wall of a rice field terrace'
Btd *pedol* 'the edge of a pondfield bounded by a retaining wall above it'
Bon *pidel* 'part of a terrace, or field, adjacent to the wall supporting the terrace above it'
TukX *piddel* <G> 'that part of the pondfield adjacent to wall or slope behind or above it '

(61) PNuCo **samal* 'preparation of a pondfield prior to transplanting rice seedlings'
Amg *h(-in-)amal* 'cooked rice'
Btd *h(-in-)amal* 'cooked rice'
Byn *h(-in-)amal* 'cooked rice'
Bon *samal* 'to till pondfields prior to transplanting; the season when pondfields are tilled '
Lpn *sama* 'to sow; to plant; to make the rice field ready; preparation of the rice field before transplantation'

(62) PNuCo **seldaŋ* 'stage of rice development when seed heads have appeared and are beginning to ripen'
Kng *holdaŋ* 'term used when the rice in the fields ripens producing ears'
Btd *holdaŋ* 'to begin to ripen, of growing rice'
Bon *seldaŋ* 'stage of rice development when it is ready for harvest'
Tuk *seldaŋ* 'stage of development for grains, beans, etc., at which leaves turn brown indicating readiness to be harvested'
Lpn *se:daŋ* 'begin to ripen, of rice'

(63) PNuCo **ta:ban* 'the cleared ground bordering a pondfield, either the mountain slope above or adjacent to it, or the area below its retaining wall'
Kng *ta:ban* 'strip of sloping ground beneath a retaining stone wall which should not be delved off'
Btd *ta:ban* 'a narrow strip of levelled ground immediately above or below a retaining wall'
Bon *ta:ban* 'cleaned space above a pondfield'
Tuk *taban* 'cleared area above, below or adjacent to a pondfield'
Lpn *ta:ban* 'ground bordering a rice field, whence its water flows; for instance, the mountain slope, etc.'

(64) PNuCo **teleb* 'to pour off excess water from cooking rice'
Kng *tolob* 'pour some water out of the cooking pot, because the one who was boiling rice sees that too much water had been poured in the pot'
Btd *tolob* 'to remove excess water from cooking food'
Bon *teleb* 'pour off excess water from cooking rice'
Tuk *teleb* 'to pour off excess water when cooking any food which absorbs water during the cooking process (i.e. grains, but not sweet potato, taro, beans, or meat)'
Lpn *teb* 'to remove, pour off the water; applied to cooking rice and *tapey*, respectively '

(65) PNuCo **tupiŋ* 1. 'stone retaining wall', 2. 'any orderly heap of objects' (< PCo **tupiŋ* 'stone wall')
Kng *tupiŋ* 'retaining stone wall, built in a rice field system; not a double stone wall which does not serve to retain earth'
BtdX *tapeŋ* '<**u* to *a*> a stone retaining wall'
Byn *topeŋ* 'stonewalled embankment'
Bon *tupiŋ* 'a stone wall, particularly a terrace wall; to pile one on top of another, as pigs during a mass sacrifice'
Tuk *tupiŋ* 'a neatly made stone wall in a pondfield, around a house, in a pig pen, etc.; neatly made pile of anything that resembles a stone wall'
Lpn *tupiŋ* 'stone wall'

Reid, L.A. "Terms for rice agriculture and terrace building in some Cordilleran languages of the Philippines". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*.
C-127:363-388. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.363*

CENTRAL PAPUAN CULTURE HISTORY: SOME LEXICAL EVIDENCE

M.D. ROSS

1. INTRODUCTION[1]

This paper is somewhat different in its intent from others in this volume. Whereas most of the papers are largely concerned with reconstructing a specific terminology in one or more interstages, the present paper uses diverse reconstructed etyma to piece together the prehistory of a relatively small group of Austronesian speakers. These are speakers of the thirteen Central Papuan (CP) languages,[2] which lie scattered along or close to the south-west coast of the Papuan mainland (see Map 1).

The CP languages form a closed subgroup of Oceanic Austronesian languages, descended from a common ancestor, Proto Central Papuan (PCP). This subgroup forms part of the Papuan Tip (PT) cluster, with about fifty member languages, whose common ancestor was Proto Papuan Tip (PPT). For convenience's sake, member languages of the PT cluster which do *not* belong to the CP subgroup are referred to here simply as 'non-CP languages'. The non-CP languages are situated on the coasts and archipelagos of south-east Papua (see Map 2 and Ross 1988:195).

The CP and PT groupings have been the subject of a number of pieces of work, including Chapter 6 of Ross (1988), which also provides an overview of earlier studies. The genetic unity of both groups is well established (CP by Pawley 1975b and Lynch 1983b, PT by Ross 1988). Some elaboration of the relationships among some non-CP languages is given by Ross (1992), but this is only peripherally relevant to the subject of the present paper. Figure 1 gives an approximate genetic tree showing relationships among CP languages. It provides more detail than the corresponding figure in Ross (1988:192), and the subgrouping decisions will be briefly justified below. The conventions used in Figure 1 are those outlined

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1 This is an almost completely rewritten version of the paper presented at the Symposium. This version has benefitted greatly from the work of the Oceanic Lexicon Project at the Australian National University. The aim of the project is to produce a dictionary of Proto Oceanic reconstructions, organised by terminologies. The Project is partly financed by a grant from the Research School of Pacific Studies, Australian National University.

I would like to express my thanks to Meredith Osmond, the Project's research assistant, for her assistance, and to Nigel Oram, who provided extensive data on fish terms in Motu and Hula and on various other matters. I am also grateful to Bruce Biggs, Ross Clark, Paul Geraghty and Bob Langdon for their comments on the first version of this paper and to Tom Dutton and Andrew Pawley for comments on successive versions. Needless to say, whatever errors remain are my responsibility.

2 The figure of thirteen presupposes that Mekeo, Sinagoro and Keapara are each treated as a single language. There are perhaps grounds for treating Mekeo as more than one language, as indicated in Figure 1 (Alan Jones, pers. comm.).

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 389-479.
Pacific Linguistics, C-127, 1994.

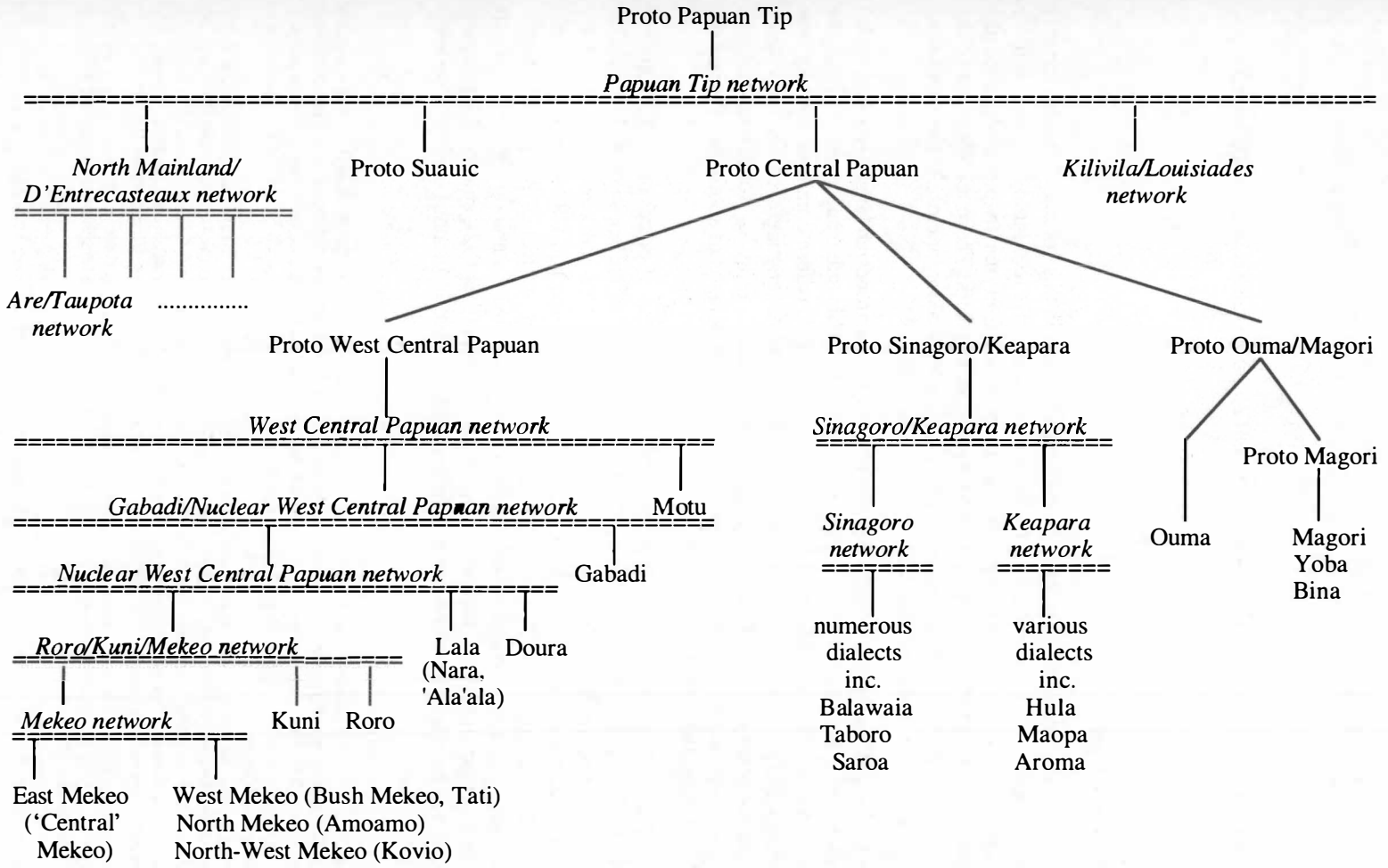
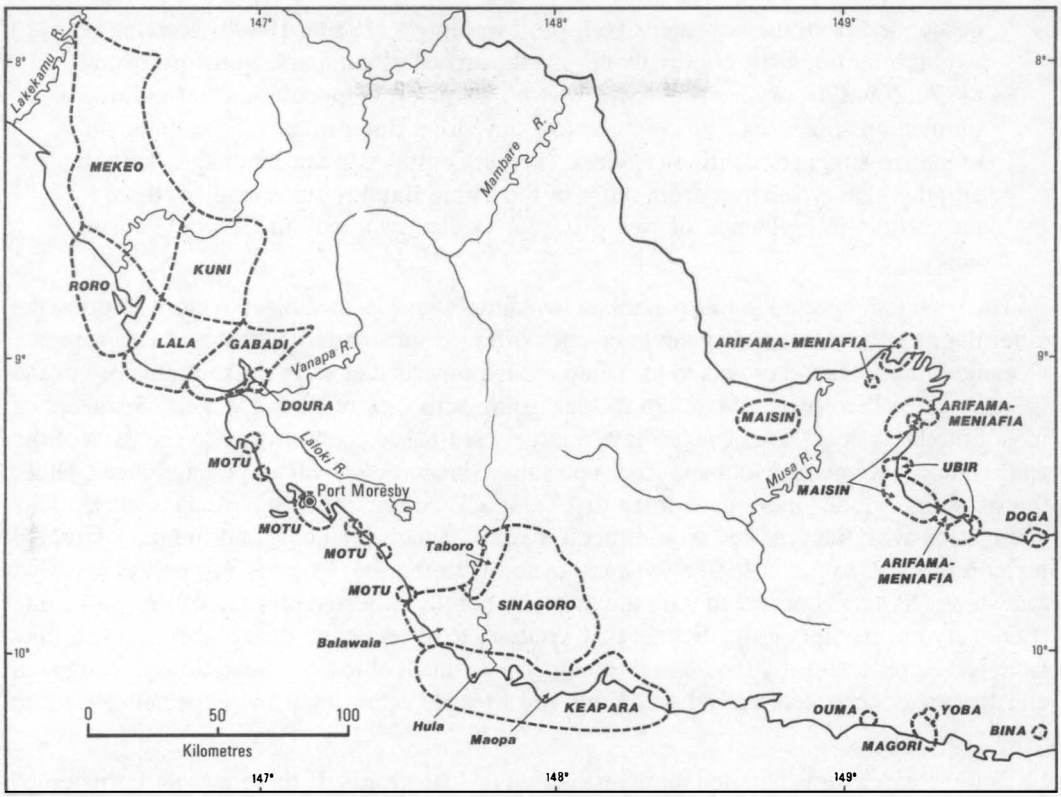


FIGURE 1: THE AUSTRONESIAN LANGUAGES OF CENTRAL PAPUA: APPROXIMATE GENETIC TREE



MAP 1: OCEANIC LANGUAGES OF THE CENTRAL PAPUAN AND ORO COASTS

by Ross (1988:9-10), where a double broken line is used to represent a dialect network or chain.

Since the CP languages form a subgroup within the PT group it follows that at some stage in the past speakers of a PT communalect which I will call pre-PCP moved from the heartland of the PT cluster in south-eastern Papua westwards along the south and south-west coast. There they were sufficiently isolated geographically and socially from the rest of the cluster – and for a time remained close enough to each other – for their communalect to undergo the innovations reconstructable for PCP. After these innovations had occurred, PCP speakers occupied larger portions of the south and south-west coast, resulting in today's CP languages, which form three groups, as shown in Figure 1. We can conveniently conclude the story with a quotation from Ross (1988:195) which talks about the archaeological record:

> There is general agreement (i) that people who were probably AN [Austronesian]-speakers have been in Central Papua since sometime around 100 B.C. (Vanderwal 1973; Bulmer 1982; Allen 1977a, 1977c) and (ii) that rapid cultural change occurred sometime around 1000 A.D. both in the area occupied today by the Are chain (Collingwood Bay) (Allen 1977c:396-397) and along the coast inhabited today by speakers of Central Papuan languages. With regard to the latter, however, there is disagreement as to the extent to which cultural change resulted from the arrival of a new group of AN-speaking settlers from the east. From Vanderwal's (1973), Allen's (1977a) and Bulmer's (1979) accounts, a linguist might infer that speakers of present-day Central Papuan languages are

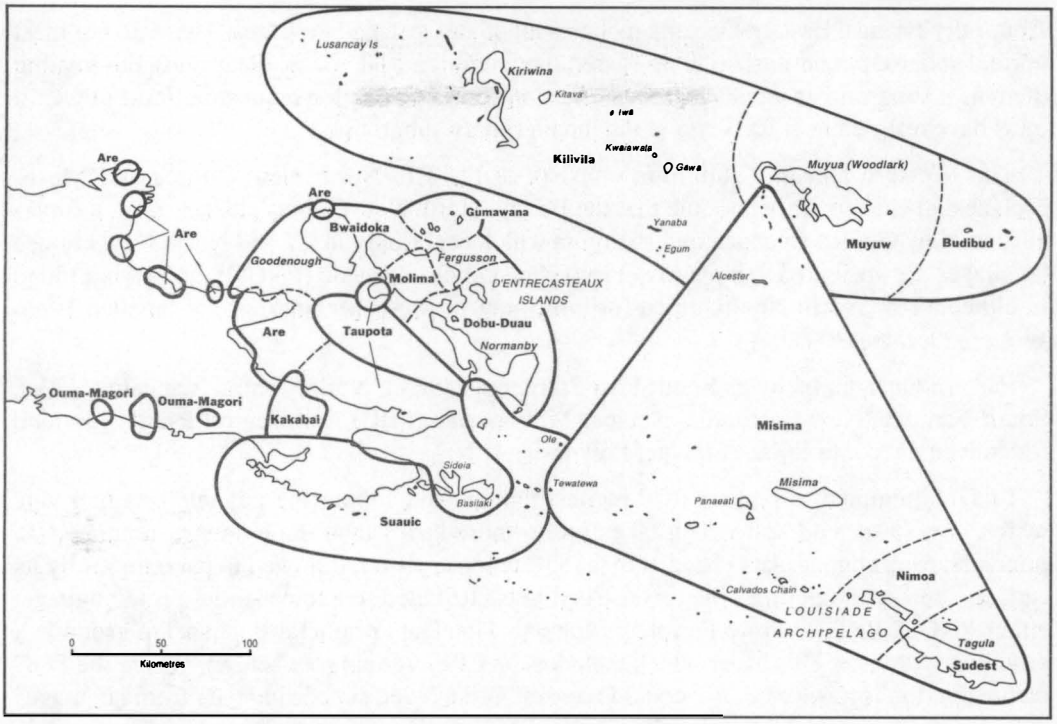
descended from the new arrivals. From Swadling's (1980a, 1980b) account he would infer linguistic continuity despite the arrival of intruders, whilst Bellwood (1978:269-270) argues that there was no intrusion of population but cultural innovation spreading from what is now the Milne Bay Province. The linguistic evidence suggests continuity, since (i) the Central Papuan languages have a lengthy history separate from those of the Milne Bay Province; and (ii) there is no substantial evidence of two different Oceanic sources in Central Papuan languages.

The research reported in this paper had two aims. One was to subject to close scrutiny the latter claim – that Central Papuan languages offer no substantial evidence of two separate Oceanic inputs. The other was to look into the hypothesis that early in the prehistory of the CP languages there was a hiatus in the sea-going activities of their speakers. Speakers of most of today's non-CP languages have a largely sea-based economy, as do speakers of the CP languages Keapara, Motu and Roro and some Sinagoro, Gabadi and Lala villages. Other things being equal, one would infer that these CP communities have had a continuous association with the sea, and would therefore expect their lexicons, and the reconstructed lexicon of PCP, to retain PPT etyma associated with the sea. Cursory inspection revealed that some CP items connected with the sea were not the expected reflexes of Proto Oceanic (POC) etyma, prompting the thought that, contrary to expectation, the speakers of PCP may have had a predominantly land-based economy (like much of today's Sinagoro-speaking area and the areas occupied by Gabadi, Kuni and Mekeo) rather than the expected maritime economy.

Both research aims entailed an investigation of loan words. If there was an intrusion of non-CP speakers in the CP-speaking area sometime after its initial settlement, then we would expect to find non-CP loans in CP languages. And if there was a hiatus in the maritime economy of CP speakers, then we would expect some directly inherited lexical items associated with sea-based activity to have been replaced by loans. Hence tracing loan words and their histories forms a major part of this paper. The data base used for it consists of cognate sets whose referents are either related to maritime life or to life on land, in order to trace what has happened to vocabulary associated with these two domains.

The first finding of this investigation is that, whilst many of the cognate sets presented in this paper indicate linguistic continuity, that is, direct inheritance from PPT, a smaller number appear to be loans from non-CP languages, at least some of which are consistent with a Collingwood Bay source. For such loans to have occurred, it would seem probable that some of the newcomers settled amongst CP speakers, an inference which supports Swadling's interpretation of CP prehistory.

The second finding is that the hypothesis of a hiatus in PCP sea-going activities is not supported.There are a number of directly inherited items associated with marine activity (listed in section 4.2), particularly the names of fish species, which indicate continuity. It is true that PCP items associated with the sea are sometimes not the expected reflexes of POC etyma, but these cases are either a result of the borrowing from non-CP languages referred to above, or, in all probability, of borrowing from non-Austronesian languages. Speakers of CP languages have long been in contact with non-Austronesian-speaking neighbours, a fact which has probably affected all thirteen languages, and which, as Dutton (1982) has demonstrated, has had radical effects on the four easternmost CP languages, Ouma, Magori, Yoba and Bina – so radical that these languages have not only undergone substantial lexical



MAP 2: AUSTRONESIAN LANGUAGE GROUPS IN EASTERN PAPUA

replacement but are in process of being completely replaced by non-Austronesian languages.[3] Interestingly, however, acquisition of non-Austronesian vocabulary is not a *necessary* result of close contact with non-Austronesian speakers. The Motu live in a symbiotic socioeconomic relationship with the non-Austronesian Koita (Allen 1977b), but Dutton's (1994) research indicates that lexical borrowing has been largely from Motu into Koita, and consists in the main of cultural items. I have made no attempt here to investigate non-Austronesian loans in CP languages, because relevant data from non-Austronesian languages are not available.

The remainder of this section is devoted to various presuppositions and conventions. Section 2 sketches portions of PT phonological history as a framework for identifying loans and understanding their history. Section 3 presents non-CP loans found in CP languages, and deals with their identification, sourcing, and the CP interstage at which they were acquired. Section 4 draws together various threads to make some inferences about CP culture history, and lists directly inherited PCP etyma in domains associated with maritime and terrestrial activities.

The overall Austronesian subgrouping assumed here is Blust's (given in Blust 1987a), but in practice the only protolanguage of a higher order than POC that I refer to is Proto Malayo-Polynesian (PMP). Within Oceanic I assume a minimum of three primary subgroups: Western Oceanic, Admiralty Islands (ADM), and Eastern Oceanic. Western Oceanic and Admiralty Islands are reasonably well founded, and have been defined by Ross (1988). The St Matthias group, a possible tiny primary subgroup, is here included with

3 It is generally accepted that the ancestors of at least some speakers of Mailu, a non-Austronesian language close to Magori, were Austronesian speakers.

Admiralty Islands. Eastern Oceanic includes all other Oceanic languages. These do not meet normal subgrouping criteria (i.e. no shared innovations define the whole group), but treating them as a subgroup ensures a rigorous criterion for recognising a reconstruction as POC: it must have reflexes in at least two of the three primary subgroups.

The Western Oceanic subgroup consists of the PT, North New Guinea and Meso-Melanesian clusters. It is possible that the PT and North New Guinea clusters form a super-cluster, New Guinea Oceanic, and so etyma which occur only in PT and North New Guinea languages are attributed to a putative Proto New Guinea Oceanic (PNGO), and etyma found in either PT or North New Guinea (or both) and in Meso-Melanesian are labelled Proto Western Oceanic (PWO).

Eastern Oceanic includes South-East Solomonic (SES), North/Central Vanuatu (NCV), South Vanuatu, New Caledonia, Nuclear Micronesian (MIC), and Central Pacific (divided for convenience into Fijian (FIJ) and Polynesian (PN)).

I have attempted to present PCP reconstructions and supporting cognate sets in a way which is easy to read and which takes up no more space than the evidence requires.[4] In principle, each cognate set is headed by a POC reconstruction, followed in parentheses by its earliest source.[5] Sometimes the reconstruction is attributed to a lower-order protolanguage, either PNGO, PPT, or Proto Peripheral Papuan Tip. The Peripheral Papuan Tip group is a grouping within the PT cluster which includes the CP subgroup (see below). Where the POC reconstruction is new or controversial I have either included supporting data from languages outside the PT cluster or occasionally given a PMP reconstruction supported by non-Oceanic cognates.

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4 Sources of data for this study are:
(1) those listed in Appendices A and B of Ross (1988);
(2) computer files of North/Central Vanuatu data compiled by Ross Clark, and of Polynesian (POLLEX) data compiled by Bruce Biggs and others (both at the University of Auckland);
(3) computer files of dictionaries in progress provided by members of the Summer Institute of Linguistics. Languages and those who compiled/supplied the dictionary are as follows: Biliau (Doug Bennett), Buang (Bruce Hooley), Bwaidoga [Iduna] (Joyce Huckett), Dami (George Elliott), Ramuaaina [= Duke of York] (Lisbeth Fritzell and Robyn Davies), Gapapaiwa (Ed and Catherine McGuckin), Gumawana (Clif Olson), Hote (Marguerite Muzzey), East Kara (Perry and Virginia Schlie), Kaulong (Craig Throop), Levei-Drehet [= Khehek] (Stephan Beard), Lewo (Robert Early), Lou (Robert and Verna Stutzman), Manam (Stephen and Kim Blewett), Mangseng (Lloyd Milligan), Mangap-Mbula (Robert and Salme Bugenhagen), Mengen (Fred Madden), Misima (Bill Callister), Mumeng [Patep] (Linda Vissering and Karen Wilson), Nakanai (Ray Johnston), Nehan (John Glennon), Patpatar (Ed Condra), Lukep [= Pono] (Jeff and Sissie D'Jernes), Siar (Larry Erdman), Sissano [Arop] (Stephen Whitacre), Sudest (Mike Anderson), Sursurunga (Don Hutchisson), Takia (Salme Bugenhagen, Judy Rehberg, Curtis Thomas), Tawala (Bryan Ezard), Teop (David Snyder), Tinputz (Roman Hostetler), Titan (Keith Lusk);
(4) computer files of dictionaries in progress provided by Debbie Hill (for Longgu) and myself (for Takia);
(5) other dictionary/vocabulary sources: Bauan Fijian (Capell 1941), Irarutu (Grimes and Matsumura 1990), Loniu (Hamel 1994), Lou (Blust, forthcoming a), Maringe (Cheke Holo) (White 1988), Mekeo (dialects other than East: Alan Jones, pers.comm.), Molima (Chowning n.d.b), Motu (Nigel Oram, pers.comm.), Tolo (Crowley 1986), Wayan Fijian (Pawley and Sayaba, forthcoming).

5 This is sometimes a difficult exercise, as earlier reconstructions may differ in form and meaning from each other and from mine, and the decision as to whether a particular reconstruction is 'new' is sometimes rather subjective. I have taken higher-order (e.g. PMP) reconstructions for which there is also supporting Oceanic data to be the 'source' of a reconstruction. It is in this sense that Dempwolff (1938) appears as the source of POC reconstructions.

Since data are drawn from a wide range of languages, an abbreviation to the left of each datum indicates the subgroup of Oceanic to which the language belongs. In general, the closer a language is genetically to the PT cluster, the more fine-grained the subgrouping adopted. For Admiralty Islands and Eastern Oceanic languages I have used subgroups mentioned above.

Within the Meso-Melanesian and North New Guinea clusters I have used groupings defined in Ross (1988). Within the Meso-Melanesian cluster I distinguish Bali-Vitu (BV), Willaumez (WLZ), North-West Solomonic (NWS), and New Ireland (NI, excluding the NWS subgroup thereof).

Within the North New Guinea cluster I distinguish Bel, Schouten (SCH), South-West New Britain (SWNB), Mengen (MGN), Vitiaz (VTZ), Vitiaz Strait languages not included under Bel, SCH, SWNB or MGN), Ngero (NGO), Markham (MKM), and Huon Gulf (HG, excluding the MKM languages).

The internal structure of the PT cluster is described by Ross (1992):

1) Nuclear Papuan Tip network
   a) North Mainland/D'Entrecasteaux network[6] (NMDX)
      i) Gumawana language (GUM)
      ii) Dobu/Duau chain (DD)
      iii) Bwaidoka/Molima network (BM)
      iv) Are/Taupota chain (AT)
      v) Kakabai chain (KAK)[7]
   b) Suauic linkage (SUA)
2) Peripheral Papuan Tip network
   a) Kilivila/Louisiades network (KL)
      i) Kilivila family
      ii) Misima language
      iii) Louisiades languages (Nimoa and Sudest)
   b) Central Papuan family (see also Figure 1 and the discussion below)
      i) Ouma/Magori subfamily (OM)
      ii) Sinagoro/Keapara network (SK)
      iii) West Central Papuan network (WCP, where not included within NWCP)
         A) Motu language
         B) Gabadi language
         C) Nuclear West Central Papuan network (NWCP)
            – Lala language
            – Doura language
            – Roro/Kuni/Mekeo network (RKM)

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6 Ross (1988) classes Gumawana (= Gumasi) in the Kilivila/Louisiades network, but amends this in a last-minute footnote. Ross (1992) shows that it is a member of the NMDX network. In the classification given in Ross (1992), separate Bwaidoka, Molima, Are and Taupota groups are distinguished. I have lumped the first two together here as the Bwaidoka/Molima network and the latter two as the Are/Taupota chain, because the four small groups are distinguished only by morphological innovations. Phonological innovations – our concern here – only provide criteria for distinguishing the larger groups.

7 More data are needed before the membership of the Kakabai chain (Kakabai and Dawawa) in the NMDX linkage can be confirmed.

I have adopted the convention of providing no gloss beside items in a cognate set, where their gloss is identical to that of the reconstruction at the head of the set.

Bracketing conventions in protoforms are:

(x) it cannot be determined whether *x* was present;
(x,y) either *x* or *y* was present;
[x] the item is reconstructable in two forms, one with and one without *x*;
[x,y] the item is reconstructable in two forms, one with *x* and one with *y*.

All data are cited in a standard orthography (see Ross 1988:3-4) in order to facilitate comparison. Non-cognate portions of reflexes, other than grammatical morphemes, are shown in parentheses (...). The two parts of a reduplication are separated by a hyphen. A final hyphen indicates an inalienably possessed noun which obligatorily takes possessor pronominal suffixes. For a complete list of abbreviations see Appendix 1.

2. PHONOLOGICAL HISTORY

Consonant correspondences for all CP and most non-CP languages are set out in Appendix A. The reconstructed phonologies and orthographies for POC, PPT and PCP used here are those outlined by Ross (1988), with the addition of $*p^w$ to the POC phoneme inventory.[8]

The phonological history of the PT cluster is discussed by Ross (1988:196-208). For convenience's sake, the shared phonological innovations of the Papuan Tip cluster are repeated below:

A. POC **r* and **R* merged as PPT **r*.
B. POC **d* and **dr* merged as PPT **d*.
C. POC **s* and **c* merged as PPT **s*.
D. POC **p* split into (fortis) PPT **p* and (lenis) PPT **v*, with all languages agreeing on their reflex of POC **p* in a given item. PPT **v* occurs far more often than PPT **p*.
E. POC **k* split into (fortis) PPT **k* and (lenis) PPT **q*, with all languages agreeing on their reflex of POC **k* in a given item. PPT **q* occurs far more often than PPT **k*.
F. POC **q* merged with the lenis reflex of POC **k* as PPT **q*.
G. POC **ñ* merged with POC **n* in all items except POC **ñamuk* 'mosquito'.

The internal relationships of groups within the PT cluster were tabulated above. It would be misleading, however, to interpret the tabulation above as a conventional genetic tree. As I have written elsewhere (1988:211):

> PPT speakers evidently spread through the islands of the D'Entrecasteaux and Louisiades archipelagos and established themselves on the nearby mainland coastal strip, resulting in its gradual differentiation into a dialect linkage. Contact at certain points in the linkage weakened...resulting in the division of the Papuan Tip linkage into the Nuclear and Peripheral Papuan Tip linkages. However, neither the Nuclear nor the Peripheral Papuan Tip languages are characterised by a set of shared innovations. Instead, each linkage is chained together by a series

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8 The reconstruction of POC $*p^w$ has been necessitated by recent work on the lexicon of POC (Ross, forthcoming); it is not unexpected, as it fills an empty slot in the previously reconstructed inventory.

> of intersecting isoglosses...but there is a distinct gap between the two linkages in the chains of isoglosses.

Many of the details of the interrelationships of non-CP languages are irrelevant to this paper, and only relevant matters are summarised here (for further information, see Ross 1992). Of particular importance in determining the approximate sources of non-CP loans in CP languages are the canonic forms of non-CP reflexes of POC etyma with final consonants. PPT retained final consonants, and in general Nuclear PT languages also retain them. NMDX languages add *-a* after the final consonant, Suauic languages *-i* . For example:

POC **qatop* 'sago thatch'
PPT **qatov*
Pre-NMDX **qatov-a*

AT: Are *katoba* 'mat of plaited coconut leaf'
DD: Dobu *atoa*

Pre-Suauic **qatof-i*

SUA: 'Auhelawa *atovi*, Suau *hatofi*

Similarly, reflexes of POC **patar* 'raised platform, platform over outrigger'/PPT **patar* occur in NMDX languages with *-a* (Gumawana *patala* 'fleet of canoes', Dobu *pata-patala* 'outrigger boom) but in Suauic dialects with *-i* (Daui *patapatali* 'outrigger float'). Similarly with PPT **daum*^{w}*ar* 'calm': Wedau *daumora*, Tawala *dumola*, but Daui *daimoli*, Tubetube *daum*^{w}*ali*.

Of Peripheral PT languages, the Pre-Kilivila and Misima retain coronal final consonants, but lose the rest, whilst the Lousiades and CP languages lose all final consonants.

The NMDX languages are also characterised by two sound changes. Firstly, POC/PPT **l* becomes *n* in all of them (but is lost sporadically before **i* in some of them). Secondly, the fortis reflex of POC/PPT **s* is variously *g*, *ɣ*, *r*, *y* or zero, reflecting a sound change POC/PPT **s* > NMDX **r* or **ɣ*.[9]

Within the NMDX network, the Are/Taupota languages are set apart by the fact that they undergo devoicing of the PPT voiced stops **b*, **d*, and **g* (Ross 1992:160-161).

Within the Are/Taupota chain, the Taupota languages differ from the Are in their reflexes of POC/PPT **ŋ*. In Taupota languages, **ŋ* is reflected as *g*, *ɣ* or *y* (outcomes, I take it, of a sound change **ŋ* > *ɣ*), whereas in Are languages it has become *n*.

The non-CP languages have remained in complex but changing patterns of contact with each other (cf. Allen 1977c:396-397), so that there has been extensive borrowing – to the degree that we can speak of 'indirect inheritance' in Biggs' (1965) sense (indirectly inherited correspondences are shown in parentheses in Appendix A). This fact means that it is difficult to reconstruct much of the detail of non-CP linguistic prehistory or to state precisely the sources of non-CP loans in CP languages.

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9 It is unclear exactly what the change was. The sequence **s* > **z* > *r* is of course cross-linguistically common, but it is doubtful that this occurred here, since (i) it requires us to posit a further sequence of changes **r* > *ɣ* > *g*, *y*, *Ø*, the first step of which entails an unusual shift from a coronal to a dorsal continuant; (ii) we might expect the reflexes of PPT **s* and **r* to merge, but they do so only in Arifama; (iii) this sequence **s* > **z* > *r* is lenitive, whereas *g*, *ɣ*, *r*, *y* and zero are fortis reflexes of **s* (Ross 1988, Chapter 3, especially pp. 83-93). This leaves us with the change **s* > *ɣ*, which is to my knowledge cross-linguistically otherwise unattested.

The phonological innovations of PCP relative to PPT are as follows:

1. (i) POC/PPT **u* becomes PCP **i* after POC/PPT **-ol-*, **-ul-*, **-al-*;
   (ii) POC/PPT **l* is lost before POC/PPT **i* and **u* [this environment is fed by (i)];
   (iii) POC/PPT **l* and **y* merge as PCP **y* before POC/PPT **a*, **o*.
2. POC/PPT **s* becomes a stop or a flap in CP languages (PCP **r*).
3. POC/PPT word-final consonants are lost in absolute final position.

This list of innovations is much reduced in comparison with the list given by Pawley (1975b), because it excludes innovations which had already occurred in PPT. Innovations 1(i) and (ii) are in fact not exclusive to the CP languages, but are included here because they occur without exception in CP languages but only sporadically in certain non-CP languages (Ross 1992). The list also excludes the alleged loss of POC **k* and **q* (PPT **q*), since Lynch (1983b) shows that they were retained as PCP **ɣ*. Innovation 1, actually a sequence of innovations, is Lynch's revision of Pawley's innovations (b), (c) and (g).[10] Part of innovation 1 (i), namely its operation in the environment **-al-*, has received no previous mention in the literature. It is illustrated by POC **walu* 'Spanish mackerel, *Scomberomorus* spp.', PCP **vai* (see section 4.2.1). Innovation 1 (iii) has not been presented in a published work before. It is supported by the following cognate sets (CP data are from Lynch 1983b):

POC **lakɔ* 'go' (Dempwolff 1929)
PPT **laqo*

GUM:	Gumawana *na*
AT:	Arifama *na*
BM:	Bwaidoka *nau*
DD:	Dobu *nao*
SUA:	Daui *lau*
KL:	Kilivila *la*, Nimoa *lo*

PCP **yaɣo*

OM:	Magori *eao*, Yoba *yau*, Bina *yao*
SK:	Saroa *yaɣo*, Maopa *ðao*
WCP:	Motu *lao*
NWCP:	Roro *ao*, Mekeo *lao*

POC **(y)aŋin* 'wind' (Dempwolff 1938)

VTZ:	Mbula *yaŋ* 'rain'
Bel:	Biliau *yaŋ*
NI:	Konomala *yaŋin*
MIC:	Kiribati *aŋ*
FIJ:	E. Fijian *ðaŋi*
PN:	Tongan *aŋi*, Samoan *aŋi* '(wind, breeze) blow'

10 Lynch actually generalises the environment in innovation 1 (i) to a POC back vowel (**o* or **u*) + **l* or **y*. However, as he points out, there are no known CP cases of POC **-oy-*, and only one case of POC **-uy-*. The latter is POC **ruyuŋ* 'dugong', and it proves on further investigation that the change POC **u* > **i* had already occurred in this item in PPT (POC **ruyuŋ* > PPT **ruiŋ* > Iduna *lui*, Yamalele *luiga*, Misima *yui*, PCP **rui* > Motu *rui*, Keapara *lui*). It must therefore be discounted as a PCP innovation.

PPT *yaŋin

AT: Minavegha *yagina*, Wedau *ðayina*
KL: Kilivila *yagila*

PCP *yaŋi

SK: Balawaia *ayi*, Maopa *ðayi*
WCP: Motu *lai*, Gabadi *ai*
NWCP: Lala *lani*, Roro *rani*

POC *yaŋo 'yellow' (Grace 1969)
PPT *yaŋo

AT: Gapapaiwa *yano-yano*
BM: Iduna *yao-yao*

PCP *yaŋo-

WCP: Motu *lao(bana)*, Gabadi *ao(bauba)*
NWCP: Lala *lao(bana)*, Kuni *yao(fana)*, Mekeo *lao(faŋa)*

POC *pitolo 'hungry' (Grace 1969)
PPT *vitolo

AT: Doga *bitona*

PCP *vitoyo

SK: Saroa *vito*, Hula *vio*
WCP: Motu *hitolo*, Gabadi *oro(a)*
NWCP: Lala *vikolo*

POC *puqaya 'crocodile' (Dempwolff 1938)
PPT *vuqaya

AT: Arifama *uai*
DD: Dobu *uaya*

PCP *vuyaya

OM: Ouma *uaya*, Magori *uae*
SK: Balawaia *yuaa*, Hula *vuyaa*, Maopa *vuara*
WCP: Motu *huala*, Gabadi *uaa*
NWCP: Lala *vuala*, Roro *buaea*, Kuni *buaya*, Mekeo *uala*

My revised subgrouping of the CP languages continues work presented by Dutton (1970), Pawley (1975b), Lynch (1983b), and Ross (1983, 1988). The phonological criteria for the Ouma/Magori subfamily are rather weak in two respects. Firstly, because these languages are moribund and have lost much of their inherited vocabulary, the data for sound correspondences are limited. Secondly, in so far as one can reconstruct their phonological history, they seem quite conservative. Magori, Yoba and Bina have very similar phonological histories, and share the rather unusual backing of PCP *r (from POC/PPT *s) to Magori *k*, Yoba and Bina *ʔ*. Houwever, precisely because the Austronesian lexicon of these languages is impoverished, they are less important to the concerns of this paper.

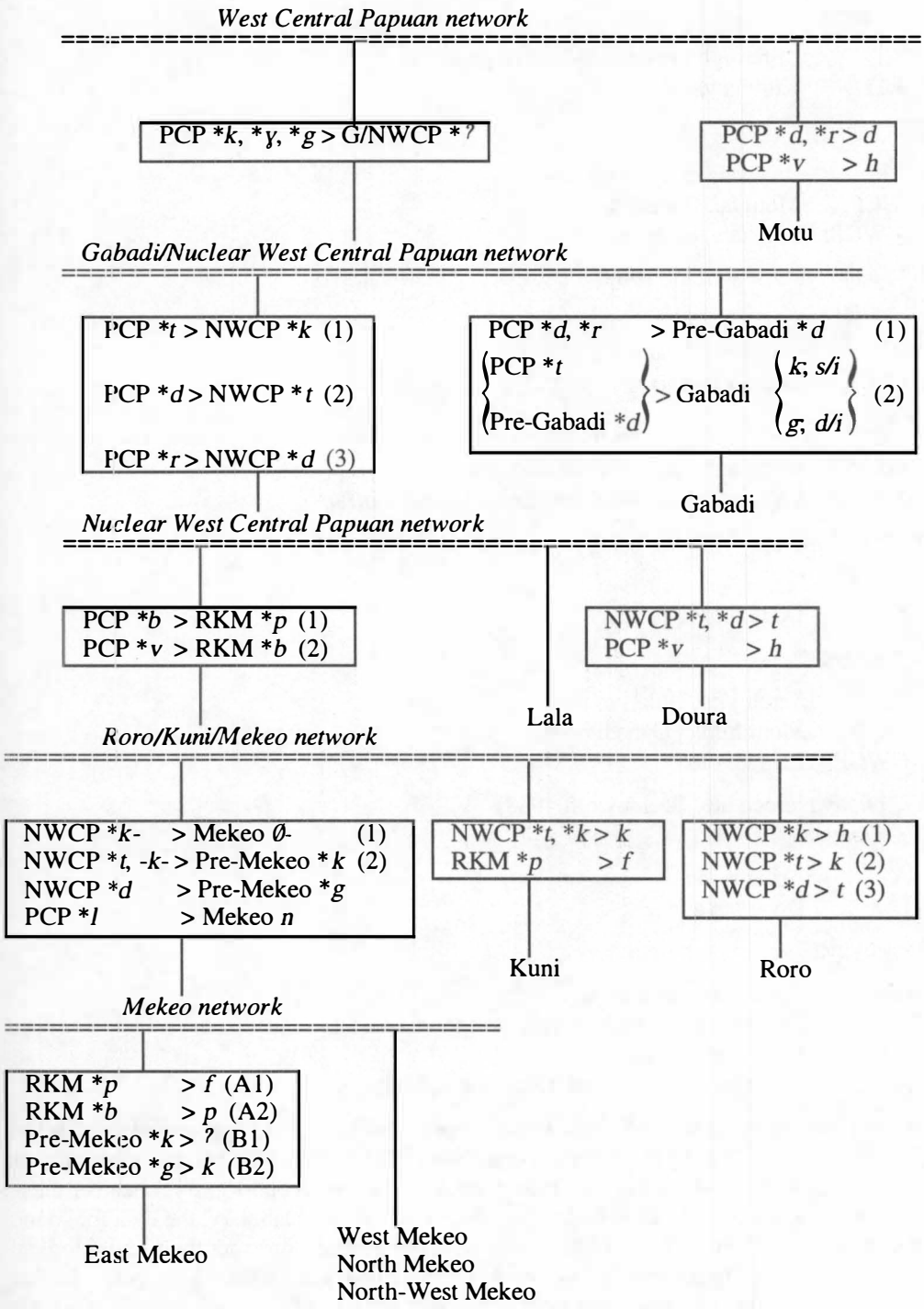

FIGURE 2: MAJOR SOUND CHANGES IN WEST CENTRAL PAPUAN LANGUAGES

The Sinagoro/Keapara network is also phonologically conservative, but there is little doubt about its unity as a network of closely related dialects (Dutton 1970, Lynch 1983b). The only important sound change common to the whole network is the merger of PCP *ɣ and *ŋ as Proto SK *ɣ. Within the network, the Keapara dialects are characterised by their treatment of stops: PCP *t is lost, whilst voiced stops are devoiced.

In Figure 1, Motu in included in the West Central Papuan network. There is limited morphosyntactic evidence for this decision (Ross 1983),[11] but no phonological evidence.

As Lynch (1983b) has shown, the internal subgrouping of the rest of the WCP network is best approached through rule ordering. My conclusions differ somewhat from his, and the most significant phonological rules used in arriving at the internal structure of the WCP network are set out in Figure 2. These rules are based on the sound correspondences of Appendix A. Note that within the boxes which show the rules applying between two interstages, rules are quite often ordered, as indicated by parenthesised figures to the right of rules (the rules in the sets A1, A2 and B1, B2 are ordered within their set, but the sets are not ordered with regard to each other). Their most intriguing feature is that they tend to form recursive drag-chains. The longest of these sequences is:

PCP *t	>	NWCP *k	(1)
PCP *d	>	NWCP *t	(2)
PCP *r	>	NWCP *d	(3)
NWCP *k-	>	Pre-Mekeo *Ø-	(4)
NWCP *t, -k-	>	Pre-Mekeo *k	(5)
Pre-Mekeo *k	>	East Mekeo ʔ	(6)
RKM *g	>	Mekeo k	(7)

Here recursive backing occurs: after a slot in the stop paradigm is vacated, it is filled by a further sound change.

There are several cases where the same change occurs in more than one language, but considerations of rule ordering show that we are dealing with parallel changes, not with shared inheritance. For example, the backing NWCP *t > k is reflected in Roro, in Kuni, and in Mekeo dialects. It would make for a neater set of changes if we could attribute it as a single change to the Roro/Kuni/Mekeo network, but we are prevented from doing this because in Roro it is preceded by NWCP *k > h, in Kuni it results in merger of NWCP *t and *k, and in Mekeo it is preceded by NWCP *k- > Mekeo Ø. It would probably be wrong, however, to describe these as *independent* parallel changes. There are a number of instances (including this one) in Figure 2 where we may suspect that contact between neighbouring communalects has resulted in the diffusion of sound changes across communalectal boundaries.[12]

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[11] There are two morphosyntactic innovations common to WCP languages. Firstly, they have lost the PPT/PCP verbal prefixes *-*na*- 'irrealis' and *-*da*- 'counterfactual', which are retained in SK languages. Secondly, they form intransitive verbs by full reduplication of the intransitive stem. Another shared innovation is the replacement of PCP **vati* 'four' by **vani*.

[12] There is at least one case in Figure 2 where two interpretations of rule ordering are possible. The change PCP *t > k is reflected in both the NWCP network and in Gabadi, and could accordingly be attributed to the Gabadi/NWCP network. However, the environment of the change appears to be different in Gabadi, in that PCP *t becomes *s* (not *k*) both before and after *i*. Whilst the change *t > *s* is common in CP languages *before* a high vowel, only in Gabadi does it also occur *after* one. Furthermore, in Gabadi PCP *t > *k; s/i* has a voiced counterpart PCP *d > *g; d/i*. It is probable that the two changes occurred

It is instructive to organise the PCP consonants reconstructed from the correspondences in Appendix A into a paradigm:

	labialised labial	labial	coronal	dorsal	labialised dorsal
stop, voiceless	*p^w	*p	*t	*k	(*k^w)
stop, voiced	*b^w	*b	*d	*g	(*g^w)
nasal	*m^w	*m	*n	*$ŋ$	
fricative		*v	*y	*$ɣ$	
flap			*r		
liquid			*l		
glide		*w			

The labialised dorsals *k^w and *g^w are shown in parentheses because it is not completely certain that they should be reconstructed. They are discussed in section 3.2.2. The labialised labial *m^w reflecting POC *m^w must be reconstructed, although it is never reflected as [m^w] in modern CP languages. Some CP cognate sets reflecting POC *m^w show variation between reflexes with simple *m* and reflexes where *m* is followed by a rounded vowel: I take this rounding to reflect the labialisation feature of *m^w. For example, POC *m^waja 'bandicoot' is reflected as Motu *mada* but Balawaia *mora*, PNGO *dim^wan 'worm, maggot' as Kuni *sima* but Balawaia *dimo*. This patterning, which does not occur when the POC protophoneme is *m, can only be accounted for by reconstructing PCP *m^w.

The same argument, based on just one cognate set each, can be advanced for the reconstruction of PCP *b^w and *p^w. The etymon containing *b^w is PCP *$b^wab^waɣa$ 'k.o. small lizard' (section 4.3.1). The etymon containing *p^w is listed with supporting data below:

POC *$p^wala(ŋ)$ 'split (wood) into two'[13]

VTZ:	Kilenge *pale* 'chop', Mbula *pala* 'break; cut; split into two', Pono *(rau)pala* 'split'
Bel:	Gedaged *fale* 'chop'
NGO:	Kove *pala*
WLZ:	Bola *pala* 'cut (meat +)', Nakanai *(sulu)pola*, Meramera *(val)pole*
NI:	Ramuaaina *(ta)palaŋ* 'halved; broken; as bamboo split down the centre'
SES:	Lau *fola*

PPT *(*p^wala, pola*) (no non-CP reflexes found)
PCP *$p^waɣa$

WCP:	Motu *pola*
NWCP:	Lala *pa-pala*, Kuni *foya*, Mekeo *fola(pea)*

simultaneously. However, PCP *$d > g$; *d/i* is fed by the merger of PCP *d and *r as Pre-Gabadi *d. If the voiceless and voiced partner rules are taken to be simultaneous, this feeding relationship forces the inference that PCP *$t > k$ occurred separately in the NWCP network and in Gabadi. However, the alternative assumption – that the NWCP network and Gabadi reflect a single change PCP *$t >$ Gabadi/NWCP *k* – does not give a different subgrouping.

13 Although it is semantically and formally similar to POC *$p^wala(ŋ)$ 'split', there is some evidence that there was a separate POC verb *$palaq$ 'chop', reflected in Vitu *(ɣutu)valaɣ(i)* 'split', Wogeo *fark(i)* 'chop' and in the first element of Meramera *val-pole* 'split'.

There are also cases where all reflexes show vowel rounding and one cannot tell which of labialisation or rounding occurred in PCP, for example, PCP *(*mota*, *m^{w}ata*) 'snake'(< POC *m^{w}ata*; section 4.3.1). Note too that, although the three labialised labials can be reconstructed in a few PCP etyma, there is a larger number of cases where the POC labialised labials become plain labials in POC, for example, PCP **bae* 'pig' (< POC **b^{w}awe*; section 4.3.1), PCP **bau* 'bamboo' (< PNGO **b^{w}au*; section 4.3.2), PCP **vatu* 'weave (a mat)'(< POC **p^{w}atuR* 'tie together, plait'; section 4.3.4), PCP **guma* 'hermit crab bait'(< PWO **gum^{w}aŋ*; section 4.2.1).

The position of PCP **y* requires comment, in that it is treated as a fricative, rather than a glide. Pawley (1975b) reconstructs this phoneme as **l* (he has **r* where I have **l*, and uses **D* for the flap here denoted by **r*). Lynch (1978b, 1983b) shows that Pre-Motu reflexes of PCP **y* were borrowed into neighbouring (non-Austronesian) Koita as *y*, and suggests that PCP **y* was an alveopalatal lateral. My inference from its reflexes ([j], [ð], [ɾ], [ɣ], [l]) is that it was an alveopalatal grooved fricative (i.e. the fricative corresponding to the approximant [j]) such as occurs as the reflex of PPT **y* in certain non-CP communalects. I agree with Pawley and Lynch that PCP **r* was a flap (hence its stop reflexes), whilst **l* was a liquid (either a lateral or some kind of rhotic).

3. NON-CP LOANS IN CP LANGUAGES

There are two interwoven tasks to be performed in relation to non-CP forms in CP languages. The first is to establish criteria for their identification, the second to identify, within the framework of PT phonological history, their non-CP sources and the CP interstage(s) at which they were borrowed.

Loans are identifiable by two criteria: by non-CP canonic form and/or by unexpected consonant reflexes. Both criteria can also be used to source loans.

3.1 ITEMS WITH NON-CP CANONIC FORM

The overwhelming majority of POC roots have the form *CVCV(C). Where a root had a final consonant, this was retained in PPT, and is reflected in some non-CP languages with the addition of a vowel. NMDX languages add *-a*, Suauic languages *-i*, as noted above. This addition did not affect that part of the PT network from which PCP broke away, however, and all POC/PPT final consonants were lost in PCP. It follows from this that where we *do* encounter a form reflecting a final consonant and an added vowel in a CP language, we have a loan. The clearest case of this is the following:

POC **kawil* 'fish hook' (Blust 1972a)

MGN:	Kakuna *kaule*
VTZ:	Tami *kal*
Bel:	Takia *oul*
SCH:	Manam *kaula*
HG:	Numbami *awila*
NI:	Tigak *ŋaul*, Tangga *auil*
NWS:	Mono *aili*, Kia *ɣaili*

PPT **qaul*

SUA: Daui *auli* 'fishing line'
KL: Misima *yaun*

PCP ***ɣau*; borrowed forms **kau*, **kauli*[14]

OM: Ouma *kauri*, Magori *kauri*
SK: Hula *kau*
NWCP: Lala *ʔauli*

The reconstruction of POC **kawil* 'fish hook' is very well supported (only a sample of the evidence is given here), and the expected PPT reflex **qaul* is attested. However, no CP language reflects the expected PCP form **ɣau*. Hula reflects a borrowed form **kau*, where the absence of final **-l* and the presence of the initial stop *k-* suggest a source in the Kilivila/Louisiades network . The other CP languages reflect a borrowed form **kauli*, whose added *-i* implies a Suauic source.

The thought that a term for 'fish hook' should be borrowed in the languages of people who exploit maritime resources is a surprising one. However, at European contact there was no line fishing in the CP region (Nigel Oram, pers.comm.; Tom Dutton, pers.comm.), a fact which renders the borrowing less puzzling. Indeed, the canonic form of another CP term for fish hook also betrays it as a loan:

POC **kima* 'clam (probably giant clam)' (Dempwolff 1938)

MM: Tabar *kima* 'clam'
SES: Gela *ɣima* 'giant clam'; Lau *ʔime* 'clam'; Longgu *ʔima* 'large clam shell'
NCV: Mota *gima* 'giant clam variety'
PN: Maori *kima* 'giant clam variety'
MIC: Kiribati *kima* 'large bivalve'; Carolinian *siim* 'giant clam'

PPT **kima*, **kimai* 'clamshell'

BM: Molima *ʔima-ʔima* 'a shell which is used as a scraper'
AT: Minavega *kimaia*, Taupota *kimaia*, Tawala *kima* 'clamshell'

Borrowed form **kimai* 'shell fish-hook'

SK: Balawaia *kimai* 'fish-hook'
WCP: Motu *kimai* 'fish-hook'

Here two PPT forms are reconstructable: the expected form **kima*, and a form with added **-i* (or perhaps more accurately **-y*, as it is treated in some Are/Taupota languages as a final consonant inviting the addition of **-a*). This **-i* is also reflected in the CP forms, indicating that they are a loan from an Are/Taupota language.

There are a few cases where CP languages reflect both inherited and borrowed forms of a PPT etymon:

POC **sawaŋ* 'channel in reef giving passage to boats, landing place, anchorage' (Pawley & Pawley, this volume)

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[14] I use two asterisks (**) to denote hypothetical reconstructed forms which are *not* supported by the evidence.

NGO: Tuam *(so)sau* 'sand'; Gitua *sawa(gei)* 'on the beach'
VTZ: Sio *sɔwa*, Roinji *saua* 'beach'
Bel: Wab *sau* 'beach'
HG: Yabem *sawa* 'space, empty area'
NWS: Roviana *savaŋa* 'strait between two islands'
ADM: Titan *(mata)caw* 'strait, passage between islands'; Lou *(mata)ca*, Wuvulu *tawa* 'channel, passage between islands'
SES: 'Are'are *tawa* 'channel in reef, landing place'; Sa'a *tawa* 'landing place'
MIC: Kiribati *rawa* 'channel in reef'
FIJ: W. Fijian *(mata)ðawa* 'beach'
PN: Samoan *ava* 'channel through reef, anchorage'

PPT **sawaŋ*

AT: Minavega *gawana* 'deep sea'
BM: Bwaidoka *ɣawana*, Yamalele *awana* 'deep sea'

PCP **rawa* 'lagoon'

OM: Ouma *roo*, Magori *rova* 'sea'
SK: Taboro *davara*, Maopa *rawa(para)*, Hula *rawa(para)* 'sea'
WCP: Motu *davara* 'sea'; Motu *dava* 'lagoon in atoll, water in chasm or ditch'

Taboro and Motu *davara* appear to be borrowed (the Taboro form perhaps via Motu), judging from their canonic form, whilst the other reflexes are directly inherited (Maopa and Hula *para* means 'big').[15] A change in meaning has occurred whereby PT reflexes (other than Motu *dava*) now mean 'open sea'. Blust (1984b) has pointed out that in Malaita and Micronesia a derived item whose root evidently reflects POC **sawaŋ* means 'open sea';[16] we may infer that the PT meaning change also entailed some now lost derived form.

An apparent reconstructive difficulty here is that the borrowed CP form *davara* reflects POC/PPT final **ŋ* as *-r-*. This is not as problematic as it might seem: a number of non-CP languages, including those of the Taupota group, have reflexes indicating that **ŋ* became *[ɣ], and there is evidence that in borrowings *[ɣ] became *r* in CP languages.

POC **quli(n,ŋ)* 'steering oar, rudder; steer' (Pawley & Pawley, this volume)
PPT **quliŋ*

GUM: Gumawana *kunuwo* 'large paddle used as rudder on sailing canoe'
DD: Dobu *kuliga* 'steer, stern'
KL: Kilivila *kuliga* 'steer, steering paddle, rudder'

PCP **ɣui* 'rudder, steering paddle, steer'; borrowed form **kulig(a,i)*

SK: Hula *ɣiu* 'steer'; Hula *kuligi* 'stern of canoe'

Here Hula reflects the same etymon twice: *ɣiu* is a metathesised form of the inherited PCP form **ɣui*, whilst *kuligi* has a borrowed canonic form and borrowed consonant reflexes. Its final *-i* points to a Suauic source, but the expected Suauic reflex of PPT **quliŋ* is ***kuli(ni)*,

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15 Lest the reader suspect that Taboro, Motu *davara* is an abbreviation of the form reflected in Maopa and Hula *rawa-para*, I should point out that the corresponding Taboro, Motu form would be ***dava-bada*.

16 The forms are:
SES: Lau *(ma)tak^{w}a* 'open sea', 'Are'are *(ma)tāwa* 'open sea', Sa'a *(ma)tawa* 'open sea'
MIC: Kiribati *(ma)rawa* 'open sea, deep sea'

and Hula *-g-*, reflecting PPT **-ŋ-*, rather points to a source among the languages of the Taupota group.

But the interpretation of this brief cognate set does not end there. The form *kuliga* is native neither to Dobu nor to Kilivila. As a consultation of Appendix A shows, the expected Dobu form is ***kuia* (PPT **l* > Dobu *Ø/_i*; PPT **ŋ* > Dobu *Ø*. And since non-coronal PPT final consonants are normally lost in Kilivila, the expected Kilivila form is **kuli*. Both languages seem to have acquired the term *kuliga* from a Taupota source before PPT **l* became NMDX **n*. Given the ample evidence that the region of the non-CP languages has long had an important ceremonial exchange system and an economy dependent on trade, it is reasonable to infer that the form *kuliga* – and presumably other maritime terms too – found its way into widespread use among the sailors of the region, and as a result also found its way to Hula.

The two cognate sets below also appear each to reflect an inherited and a borrowed PT form. This inference is based entirely on canonic form, however (the putative borrowed forms reflecting a final consonant with added **-a*), as cognates have not been found in the available data in non-CP languages, nor further afield.

PPT ***(d,j,s)am(a,e)n* 'salt'
PCP **rama*; borrowed form **damena*

SK: Maopa *rama*, Hula *rama*, Balawaia *damena*, Taboro *damena*, Hula *tamena*
WCP: Motu *damena*
NWCP: Roro *tamena*, Kuni *damea*

PPT ***diɣar* 'fat, coconut oil'
PCP **diɣa*; borrowed form **diɣara*

SK: Hula *riya*, Balawaia *diya*, Taboro *diyara* 'coconut oil'
WCP: Motu *dia* 'ointment from coconut oil'; Motu *diyara* 'fat'
NWCP: Doura *tiara* 'fat'

I conclude this section with two loans which, as far as I know, are reflected only in Hula. Both include the PPT instrumental formative **qai-* (Ross 1992:159) (from POC **kaiu* 'tree'), which does not otherwise occur in CP languages:

PPT **qai-war(a)* 'boat pole'

GUM: Gumawana *kawala* 'pole a canoe, canoe pole'
DD: Dobu *ʔewala* 'canoe pole'
SK: Hula *kewala* 'long canoe pole'

PPT **qai-poli* 'k.o. canoe'[17]

DD: Dobu *ʔepoi* 'canoe'
SK: Hula *kepo-kepo* 'double canoe'; Hula *kepole* '*Motumotu* canoe'

[17] It is possible that PPT **-poli* here reflects a POC verb **poli* 'travel about', since a POC form **poli* is certainly reconstructable: E. Fijian *voli* 'indefinite movement', Tongan *foli* 'go here and there, round about', E. Futunan *foli* 'travel about, make a tour of'.

3.2 ITEMS WITH NON-CP CONSONANT REFLEXES

The occurrence of unexpected reflexes of PPT consonants can be exploited in two directions to reconstruct the history of borrowing. Ideally, reconstructed borrowed forms can be 'placed' geographically and chronologically in the phonological histories of both the (non-CP) lending and the (CP) borrowing languages.

3.2.1 PLACING BORROWED FORMS IN THE LENDING LANGUAGES

Reconstructed borrowed forms can sometimes be placed among their non-CP sources on the basis of the non-CP phonological developments which they reflect. For example, I suggested above that the borrowed CP form **kauli* 'fish hook' could be placed among the Suauic languages because of the final *-i* added after the PPT final consonant. Note, however, that if a borrowed form (identified by an unexpected consonant reflex) happens not to contain a reflex of one of those PPT segments which has been subject to phonological change in a sub-group of non-CP languages, then there is no way that we can place it. Take, for example, the Hula form *lima* 'bail out':

POC **(l,n)imas* 'canoe bailer' (Dempwolff 1938)
PPT **(l,n)ima(s)* (no non-CP reflexes known)
Borrowed form **lima*

SK: Hula *lima* 'bail out' (expected form ***ima*)

We can be reasonably confident on both semantic and formal grounds that Hula *lima* reflects POC **(l,n)imas*. It is also reasonable to infer that the form that was borrowed was **lima*. We infer that it is a loan, because the inherited PCP form would be ***ima*. But all we can say about the source language is that it had not undergone the change PPT **l* > NMDX *n*. The source language could have been an NMDX language prior to this change, or a language elsewhere in the non-CP region, or an Oceanic language outside the PT cluster.

Sound changes in non-CP languages, noted above, allow us to place a few CP loans. NMDX languages are characterised by two sound changes. The first, POC/PPT **l* > *n*, to which we have just referred, is reflected to my knowledge in only one CP item, **yunu*, evidently borrowed from an NMDX language:

POC **kuluR* 'breadfruit, *Artocarpus altilis*' (Grace 1969: **kulu(r)*)
PPT **qunur*

DD: Dobu *ʔunu*
BM: Kalokalo *kunu*
AT: Wedau *kunori*
SUA: Sariba *ʔunuli*

Borrowed form **ɣunu* (expected PCP form ***ɣui*)

SK: Balawaia *ɣunu*, Hula *ɣunu*
WCP: Motu *unu*
NWCP: Roro *unu*, E. Mekeo *unu*

The second NMDX sound change, POC/PPT **s* > NMDX **r* or **ɣ*, is of less potential use because the inherited PCP reflex of POC/PPT **s* is **r*, so we cannot use this rule to spot borrowed forms.

We have noted that the Are/Taupota languages are set apart from other NMDX languages by the devoicing of PPT **b*, **d* and **g*. As well as the reflexes of putative PPT **davar* 'reef', noted below, we also find reflexes of the PPT etyma **bune* 'pigeon', **guru(n)* 'sword grass, *Imperata cylindrica*', **guya-guya* 'cassowary', **vadir* 'k.o. pandanus', and **leja(n)* 'nit' which reflect probable Are/Taupota devoicing. The data are listed below with annotations where relevant.

POC **bune* 'pigeon' (Dempwolff 1938)
PPT **bune*

AT: Are *bune-bune*, Tawala *bune-bune*
BM: Iduna *bune-bune*
DD: Dobu *bune-bune*
KL: Kilivila *bu-buna*, Misima *buni-buni*

Borrowed form **pune* (expected PCP form ***bune*)

SK: Maopa *pune*, Taboro *pune*
WCP: Motu *pune*

PMP **guRun* 'sword grass, *Imperata cylindrica*'[18]
POC **guRu(n)*

MGN: Maeng *gur-gur* 'grass'
WLZ: Meramera *gulu-gulu* 'grass'
SES: Bugotu *gu-guru* 'grass'

PPT **guru(n)* (no non-CP reflexes found)

Borrowed form **kulu* (expected PCP form **gulu*)

SK: Taboro *kuru-ru*, Balawaia *kulu(ka)*, Hula *uru* 'species of grass'
WCP: Motu *kuru-kuru*
NWCP: Doura *ʔuru-ʔuru*

It happens fairly frequently, both for directly inherited and for borrowed forms, that no non-CP cognates are found for a form which is attested in CP languages. But this is not especially surprising.[19] If we are right in equating Vanderwal's date of 100 BC with the settlement of CP speakers on the south-west coast of Papua, then more than two thousand years have passed since the separation of PCP from other PT languages. According to Allen (1977c), rapid cultural change spread through the Collingwood Bay (Are/Taupota) and CP areas around 1000 AD. This seems likely to have coincided with a major influx of non-CP loan words into CP languages, and a millennium has elapsed meanwhile. At either of these time depths, we would expect substantial lexical replacement to have occurred in non-CP languages, which seem to have long formed a network, but one whose patterns have ebbed and flowed repeatedly.

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18 This reconstruction is based on Philippine reflexes e.g. Ifugao *gulun*, Bikol *gogon* 'sword grass, *Imperata cylindrica*)' and the Oceanic data listed here.

19 The number of CP items for which no non-CP cognates have been found is probably magnified by the lack of dictionaries or extensive vocabularies in many non-CP languages; that is, the cognates may exist, but have yet to be recorded.

PPT *guya-guya 'cassowary'

AT: Tawala *kuya-kuya*, Taupota *kuya-kuya*, Garuwahi *kuya-kui*, Wagawaga *kuya-kuya*
SUA: Kwato *kuya-kuya*, Tubetube *guyua(bou)*

PCP *guya-g(uy)a

OM: Magori *guya-ga*, Ouma *guya-ʔa*
SK: Hula *ko-ko-ko-ko* (expected form **kura-kura*)
WCP: Motu *ko-ko-ko-ko* (expected form **gula-gula*)

The Magori and Ouma forms are probably directly inherited, but the Hula and Motu forms clearly are not, and seem to reflect Are/Taupota devoicing.[20] Borrowing evidently occurred after PCP *-*y*- > Hula -*r*-, Motu -*l*-.

PPT **vadir* 'k.o. pandanus'

KL: Kilivila *vadila* 'pandanus fruit'

Borrowed form **vatila* (expected PCP form ***vadi*)

SK: Maopa *vaira*, Hula *vaira* 'pandanus'

It is **t*, not **d*, that is regularly lost in the Keapara chain to which Maopa and Hula belong, and it is therefore reasonable to infer that the borrowed form was **vatila*, reflecting stop devoicing.

POC **lejan* 'nit' (Ross 1988)
PPT **leja(n)*; Nuclear PT **ŋeda*

DD: Dobu *neda*
BM: Iduna *yeda*
AT: Gapapaiwa *geda*, Wedau *geda*, Tawala *neda*
SUA: Sariba *neda*
KL: Kilivila *lesa*, Sudest *le-leji*

Borrowed Pre-SK form **leta* (expected PCP form ***yeda*)

SK: Taboro *reta*, Maopa *lea*
WCP: Motu *veda* (expected form ***leda*)
NWCP: Lala *meta* (expected form ***leta*)

Taboro *reta* and Maopa *lea* reflect a borrowed form **leta*, which shows devoicing of expected *-*d*- (from PPT *-*j*-). The initial consonants of these forms also betray them as borrowed, as they appear to reflect PCP **l* (< PPT **r*) rather than expected PCP **y* (< PPT **l*). The borrowed form **leta* is a little puzzling, however: if it were an Are/Taupota form, we would expect ***neta*, reflecting the sound change PPT **l* > NMDX *n*. To complicate matters further, the initial consonants of the Nuclear PT forms reflect **ŋeda*, not ***leda* or ***neda* as we would expect, and the initial consonants of the Motu and Lala forms are other than we would expect of reflexes of directly inherited PCP **yeda* or of borrowed **ŋeda*, **leda* or **neda*. I have no explanation for these problems.

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20 An alternative hypothesis is that the term was borrowed into Hula as ***gogogogo*, and underwent Hula stop devoicing before being further borrowed into Motu. Against this is the observation that Hula-to-Motu borrowing is otherwise not known.

I will mention here three other borrowed forms in CP languages whose consonant reflexes are evidence that they are loans. The first is Hula *kuligi* 'stern of canoe', discussed in section 3.1, which reflects PPT *ŋ as *-g-*, indicating a Taupota origin. The second is Motu *nuse* 'squid', in the following cognate set:

POC **nusa* 'squid' (Pawley 1978)
PPT **nusa*

AT: Maisin *neusa*
BM: Kalokalo *nui*, Bwaidoka *nui*

Borrowed form **nute* = *[nuse] (expected PCP form ***nura*)

WCP: Motu *nuse* (expected form ***nuda*)
NWCP: Lala *nude* (expected form ***nuda*)

Since PPT **s* became PCP **r* (assumed to be a flap), Motu *nuse* must be a loan from a language in which PPT **s* remained *s*. As the lenis correspondence set in Appendix A shows, such languages fall into three scattered groups: the Are chain, the Suauic network and the Kilivila family. Beyond the fact that one modern Are language, Maisin, has a cognate with *-s-*, I have no means of knowing which group is the source.

The third item is contained in the set below:

POC **sawu(q)* 'anchor' (Dempwolff 1938)
PPT **sowa(q)* [note vowel metathesis]

GUM: Gumawana *(vai)lowa* 'anchor something (e.g. a canoe, a boat)'
AT: Tawala *yogo(na)* 'anchor something (e.g. a canoe, a boat)'
KL: Kilivila *lola*, Sudest *sowa-sowa*

Borrowed form **rogo* (expected PCP form ***rowa*)

SK: Balawaia *royo*, Hula *roko*
WCP: Motu *dogo*
NWCP: Lala *do?o*, Roro *to?o*, E. Mekeo *(i)koo*

The borrowed form **rogo* shows **-go* for expected ***-wa*. This sound change occurs in Tawala, attested in *yogo-* 'anchor something' above, and in *ago* 'spouse', from POC/PPT **qasawa*. We may therefore narrow the source of **rogo* to the Taupota chain, and perhaps to the southernmost part of that chain comprised of Tawala and its neighbour dialects.

3.2.2 'NUISANCE' CONSONANT REFLEXES

In this section I shall examine items containing the four 'nuisance' phonemes PCP **p*, **k*, $*k^w$ and $*g^w$. I label them 'nuisance' because their status is difficult to determine. Their frequency is not high, and a number of the items in which they occur are clearly loans. Indeed, this number is high enough to tempt one to think that all items in which they occur are loans. This assumption would be a convenient one, and I made it with regard to **p* in the first version of this paper. However, the amount of data available to me has increased sufficiently for me to think it quite likely that **p* and **k* occurred in PCP, and possible that $*k^w$ and $*g^w$ did so too, although a good number of apparent reflexes of all four phonemes in fact have other sources.

In my discussion of consonant grade in Western Oceanic languages in Ross (1988, Chapter 3), I made the point that in a number of Western Oceanic subgroups POC *p and *k each have two reflexes, one fortis and one lenis. The fortis and lenis phonemes are not reconstructable for POC itself, only for a number of its descendants. For PPT, the reconstructed reflexes are:

POC	*p	*p	*k	*k, *q
	fortis	lenis	fortis	lenis
PPT	*p	*v	*k	*q

In the cognate set below PCP *p appears to be a directly inherited reflex, via PPT *p, of POC, PWO or PNGO *p:

PNGO *poti 'bladder'

VTZ: Mbula *pot*, Pono *pot*
NI: Tabar *puti*, Ramuaaina *put(na-ta-m<in>imi)*

PPT *poti-[21]

AT: Are *poti-*, Tawala *posi-*
BM: Iduna *fehi-*

PCP *poti-

SK: Hula *poi-*, Balawaia *posi-*, Taboro *fosi-*
WCP: Motu *posi-*

Other directly inherited PCP etyma containing *p are listed with supporting evidence in Appendix B. None of them gives us reason to believe that they have not been directly inherited by PCP from PPT.

The evidence for PCP *k is considerably stronger than for *p. Some of the POC reconstructions which head sets containing PCP *k are very well established indeed, and the cognate sets contain no evidence that the CP reflexes are not directly inherited. Two examples are cited below; others are listed in Appendix B.

POC *qone 'sand, beach' (Dempwolff 1938)
PPT *qone (no non-CP reflexes found)
PCP *kone (??)

OM: Ouma *ʔone*
SK: Hula *kone*, Balawaia *kone*
WCP: Motu *kone*

POC *kusupe 'rat' (Grace 1969)
PPT *kusuve (no non-CP reflexes found)
PCP *kuruve

OM: Ouma *ureve*
SK: Balawaia *kureve*, Taboro *kuruve*, Maopa *uruve*
NWCP: Lala *uduve*, Kuni *idube*

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21 The final hyphen indicates that these items are inalienably possessed and take a suffix indicating the person and number of the possessor.

Having shown that PCP *p and *k are reconstructable, we must also recognise that apparent reflexes of these phonemes also occur in loan words. We encountered some of these above, namely those cases where the source of the loan is an Are/Taupota item that has undergone devoicing of PPT *b or *g. The items tabulated above are PPT *bune 'pigeon', *guru(n) 'sword grass, *Imperata cylindrica*', and *guya-guya 'cassowary'.

There are also cases where evidence internal to the reflexes themselves indicates that they are borrowed. Whereas Maopa *yanave* 'tern' in the set below appears to be a directly inherited reflex of PPT *kanawe, Motu *kanaye* clearly is not: it reflects PCP *w irregularly, and its initial *k*- does not correspond with Maopa *y*.

POC *kañawe 'tern'

SES: Lau *anak^{w}e* 'tern'; Arosi *ʔanawe* 'k.o. white sea bird, *Phaeton aethurus*'

PPT *kanawe

AT: Tawala *kanawe*
DD: Duau *kana-kanawe*
KL: Nimoa *kan-kanau*

PCP *yanawe; borrowed form *kanaye

SK: Maopa *yanave*
WCP: Motu *kanaye* (expected form **(y)anave*)

In the case of PPT *kawe, both Motu and E. Mekeo have irregular reflexes (which, however, correspond with each other):

PPT *kawe 'parrot'

BM: Bwaidoka *ka-kawe*, Diodio *ka-kawe* 'feather'

Borrowed form *kaye 'male (green) *Eclectus* parrot' (expected PCP form **yawe*)

WCP: Motu *kae-kae*
NWCP: E. Mekeo *aʔe-aʔe*

The two examples above exemplify my reasons for calling PCP *k a 'nuisance phoneme'. In cases such as these an irregular reflex of a phoneme other than *k tells us that the form is borrowed. How can we then be sure that the reflexes of POC *qone 'sand, beach' and *kusupe 'rat' are not also borrowed? The answer (especially where we know of no non-CP cognates) is that we cannot be sure. Some of the instances of *k which are listed in Appendix B may well be borrowed forms: we cannot tell. And in principle the same is true of *p, where the smaller number of forms containing it renders an assessment even more difficult.

The origins of the other two nuisance consonants, the labiodorsals *k^{w}, *g^{w} are different from those of *p and *k. The latter do occur in items reflecting POC etyma, but the labiodorsals rarely do so. However, it appears that the labiodorsals may sometimes be directly inherited from PPT, and therefore reconstructable in PCP.

I argued in connection with the reconstruction of the PCP consonant paradigm in section 2 that PCP *p^{w} and *m^{w} are reconstructable, even though their labial feature is reflected only in the rounding of a following *a* to *o*. The same is true of just one known item with putative PCP *k^{w}:

PPT *k^wapir* 'skin'

BM: Iduna *k^wafili-* 'skin (of fruit, plants, animals), bark (of tree)'
AT: Basilaki *opi-*, Wedau *opi-*
KAK: Kakabai *k^wapi-*
SUA: Tubetube *k^wapi-*

PCP *k^wapi-*

OM: Ouma *ʔopi-*, Magori *opi-*, Yoba *kopi-*
SK: Balawaia *kopi-*, Hula *kopi-*
WCP: Motu *kopi*

This raises the question, do some forms in which k^w does occur perhaps also reflect directly inherited PCP *k^w? Or does the very presence of labialisation betray them as loans? I am inclined to answer 'yes' to the latter question, as this would enable us to say that labialisation is regularly lost or transferred to the following vowel (always *a*) in PCP. But the data are so sparse that I am not sure whether this generalisation holds. Like *k^wapi* 'skin', putative PCP *k^wala* denotes a major body part, a fact which tempts me to attribute it to direct inheritance. But the two known non-CP reflexes do not correspond with each other (Wedau *ð* reflects PPT **y*, Taupota *l* reflects PPT **r*): one of them must be borrowed. And if that is so, then there is no reason why the CP forms should not also be loans.

PPT (?) *k^wa(r,y)a* 'head'

AT: Wedau *k^woða-*, Taupota *kola*

PCP (?) *k^wala*

SK: Hula *k^wala*, Balawaia *k^wala*
WCP: Motu *k^wara*
NWCP: Doura *ara*, Lala *ola*, Roro *ara*, Kuni *ola*

Other cognate sets reflecting a putative PCP *k^w are listed in Appendix B.

The item below, POC **karawa* 'k.o. large shark', seems to have spread through at least part of the New Guinea Oceanic area, including the CP languages, by borrowing rather than by direct inheritance, to judge from the unexpected forms listed below.[22] Why this happened is not known. PPT reflects POC *k- as *k^w- rather than as *k- (the same is true of POC **kawak*, PPT *k^wa[i]wak* 'dog'; see Appendix B):

POC **karawa* 'k.o. large shark'[23]

NGO: Gitua *arawa* 'shark'
VTZ: Mbula *koro* 'shark'
BV: Vitu *kaliya* 'shark' (expected form ***karava*); Bali *kaluya* 'shark' (expected form ***karava*)
PN: Samoan *alava* 'k.o. shark'; E. Uvean *ʔalava* 'k.o. shark, *Carcharhinus* spp.'; Rennellese *ʔaŋaba* 'large shark sp., probably black-tip shark, *Carcharhinus melanopterus*'
NCL: Yâlayu *ā̃rau*, Kumak *ārau* 'k.o. shark'

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22 The forms Numbami *koyawila*, Daui *oyauli*, Kilivila, Muyuw *k^wau*, all 'shark', also seem to reflect this spate of borrowing, but their forms are simply too different to be sure that they share the same source.

23 I am grateful to Paul Geraghty for drawing my attention to this comparison.

PPT *k^w*arawa*

DD: Dobu *k^walawa* 'shark'
GUM: Gumawana *kolao* 'shark'
BM: Yamalele *walabo* 'shark' (expected form ***walawa*)
AT: Gapapaiwa *k^warabo* 'shark' (expected form ***k^walawa*)

Borrowed Pre-WCP form *k^wayava*; borrowed Pre-Roro-Mek form *kaibo* (expected PCP form ***k^warawa*)

WCP: Motu *k^walaha* 'shark' (expected form ***k^warava*); Gabadi *oava* 'shark' (expected form ***orava*)
NWCP: Lala *olava* 'shark' (expected form ***valava*); Roro *kaipu* 'dugong' (expected form ***aeaba*); E. Mekeo *kaifu* 'shark' (expected form ****ʔolafu*)

Note that Roro *kaipu* and Mekeo *kaifu* reflect a borrowed form *kaibo*, which is consistent with a loan from an Are language with a form like Gapapaiwa *k^warabo*.

The putative PCP phoneme *g^w is less troublesome than *k^w only because it occurs less often. The two sets below have regular correspondences and look like directly inherited forms:

PPT *g^wabe* 'thigh'

AT: Are *wape*, Doga *oape*

PCP (?) *g^wabe* 'thigh'

OM: Ouma *gobe*, Magori *gobe*
SK: Kalo *k^wape*
NWCP: Roro *ape*

PPT *g^wau* 'ten' (?)

DD: Sewa Bay *g^wau(ina)* 'thousand, very many'
KL: Nimoa *waw(ate)* 'ten'

PCP (?) *g^wau* 'ten'

OM: Bina *au(kana)*
WCP: Motu *g^wau(ta)*, Gabadi *ou(ka)*
NWCP: Doura *ou(ka)*, Lala *ou(ka)*, E. Mekeo *ou(ʔa-na)*

There is one possible source of PCP forms with *k^w and *g^w which is intriguing. I mention it here because it merits further investigation. In each of the cases below, putative PCP *k^w and *g^w seem to be derived from the POC/PPT labialised labial stops *b^w and *p^w.

PPT *b^warawa* 'rope, vine'

AT: Wedau *barawa*, Gapapaiwa *barawa*, Tawala *balawa* 'rope'
BM: Yamalele *bulava* 'rope'; Kalokalo *bulava* 'vine, string'

PPT *qurava* 'vine'

AT: Wedau *ɣurawa*, Tawala *gulawa* 'string'; Gapapaiwa *urava* 'rope'
DD: Duau *gulaha* 'string'

Borrowed form *k^wanau(a) 'string'

SK: Maopa *wanau*
WCP: Motu *k^wanau*
NWCP: Roro *anaua*

POC *b^waŋoR 'nasal mucus' (Ross 1988)
PCP (?) *k^wam^{w}a

SK: Hula *k^wamo*, Balawaia *k^wamo*
WCP: Motu *k^wama*

PEOC *(p^w, b^w)atu 'knot, tie a knot'[24]

SES: Arosi *pou-pou* 'knot of bowstring, round object'; Lau *g^wou* 'lump, knot in string or wood'
MIC: Marshallese *p^wōc* 'knot, be knotted'

PCP (?) *k^watu

SK: Hula *k^wau* 'tie'
WCP: Motu *k^watu* 'knot'

Proto Ngero/Vitiaz *b^wale 'buttocks'

VTZ: Mbula *^{m}bule-*, Tami *(ka)bole(ŋ-pu)*
NGO: Gitua *b^wale*, Kove *vole* 'hip'

PPT *b^wale

KL: Kilivila *p^wala*

PCP (?) *g^wale

SK: Hula *kole*, Balawaia *gale*

Both individually and together, these forms raise a number of questions which are beyond the scope of this paper. I have observed elsewhere, however (Ross, forthcoming), that a number of non-CP languages reflect a form *k^watea 'greater yam, *Dioscorea alata*' which displays North Malaitan reflexes (*p^w > k^w; *s > t) of POC *p^wasepe.

Our discussion of the nuisance phonemes and their reflexes has not led us forward in our understanding of PCP culture history. What it has done is to remind us that lexical data are not always as easy to interpret historically as Austronesianists often seem to imply, and that given the nature of traditional western Oceanic society, with its shifting trade networks and shifting inter-group relationships, we may often be dealing with unrecognised layers of borrowing, some of it perhaps from Oceanic languages (and groups of languages) which no longer exist.

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[24] This item is apparently distinct from the semantically and formally similar POC *patu 'plait, weave (mats, baskets)':
VTZ: Mbula *^{m}bat* 'tie together leaves, rope'
ADM: Mussau *atu* 'plait (mats, baskets)'
PN: Tongan *fatu* 'begin making a mat, compose', Samoan *fatu* 'plait, compose'
PCP *vatu 'weave (a mat)'
WCP: Motu *hatu* 'weave (a mat)'
NWCP: Lala *vaku* 'weave (a mat)'

3.2.3 PLACING BORROWED FORMS IN THE BORROWING LANGUAGES

Borrowed forms can be placed in relation to the phonological history of the borrowing languages by reconstructing the probable form of the loan and then examining which sound changes it has been affected by since it was borrowed.

Obviously, the more complex the phonological history of a language, the more precisely loans can be located within that history. Within the CP family, it is the WCP network which displays the most complex history, and therefore provides the best opportunity for placing loans. One observation can be made about the Sinagoro/Keapara network, however: in general, where a loan is eligible for the application of one of the sound changes which divided the Keapara dialects from the rest of the network, the sound change applies. Thus among etyma already discussed, Maopa, Hula *vaira* 'pandanus' (< **vatila*), Maopa *lea* 'nit' (< **leta*) both show loss of **t*, and Hula *tamena* 'salt' (< **damena*), Hula *roko* 'anchor' (< **rogo*) both show stop devoicing (but Hula *kuligi* 'stern of canoe' does not). This means that these loans occurred before the application of these sound changes and therefore before the separation of Keapara from the network.

The sound changes which have affected WCP languages, set out in Figure 2, offer fruitful ground for locating loans, and an interesting observation emerges. Loans are not scattered at various points down the tree. Instead, if we look for a point in the tree at which the largest possible number of loans could have occurred, we find a cluster of loans which were *not* affected by the sound changes which mark the split of the Nuclear West Central Papuan network from Gabadi, but which *are* affected by sound changes which follow it. In other words, there seems to have been an influx of loans into Nuclear West Central Papuan, the network of dialects ancestral to Doura, Lala, Roro, Kuni and Mekeo.

The cognate set below serves to illustrate several points:

POC **kuRita* 'octopus' (Dempwolff 1938)
PPT **qurita*

AT: Tawala *kulita*
SUA: 'Auhelawa *ulita*

PCP (?) ** ɣulita* (borrowed form **(ɣ)ulita)*

SK: Balawaia *ɣulita*, Maopa *ɣulia*, Hula *ɣulia*
WCP: Motu *urita*
NWCP: Lala *ulita* (expected form ***ulika*); Roro *urita* (expected form ***uriha*); E. Mekeo *ulita* (expected form ***unika*)

Firstly, the Sinagoro/Keapara and Motu forms here look as if they are directly inherited and so, following the canons of the comparative method, I have reconstructed a PCP form. The Lala, Roro and Mekeo forms, however, are clearly borrowed. The form of the loan is such that it could have come from Balawaia or Motu. But this seems rather unlikely. At this early stage in the dispersion of the CP languages, it seems very probable that the communities represented here remained in seaborne contact with each other, and rather improbable that a term like 'octopus' should be lost by part of the network, only to be reacquired sometime later. A more plausible scenario is that the form was lost by the whole network early in its history, and that the CP forms listed above *all* reflect the reacquisition, presumably from a non-CP source (this is a reasonable assumption, given that where we have found evidence for the sources of loans, they have been non-CP). If the borrowed form was **(ɣ)ulita*, as the

NWCP reflexes require, then the resulting Sinagoro/Keapara and Motu forms would be indistinguishable from directly inherited forms. We observed above that both inherited forms and loans undergo the Keapara sound changes: Maopa, Hula *ɣulia* reflect **t*-loss.

Below I tabulate the application of sound changes (drawn from Figure 2) to the form **ɣulita* (i) assuming that it was a PCP form; (ii) assuming that it was borrowed into the NWCP network (I have ignored the PCP **l* > Roro *r* change, as the phonetic realisation of the liquids is neither certain nor relevant). Assumption (ii) gives the correct outputs for Lala and Roro (but not for Mekeo, where we infer that the loan took place much later):[25]

		(i) PCP ***ɣulita*	
PCP **k*, **ɣ*, **g*	> G/NWCP **ʔ*	G/NWCP ***ʔulita*	–
PCP **t*	> NWCP **k*	…	–
			(ii) Borrowed **(ɣ)ulita*
		NWCP, Lala ***ʔulika*	Lala *ulita*
NWCP **k*	> Roro *h*	Roro ***ʔuriha*	Roro *urita*

Above I discussed the widespread borrowing of reflexes of POC **karawa* and indicated that its CP reflexes seem to represent two borrowed sources. The relevant data are as follows:

POC **karawa* 'k.o. large shark'
PPT **k*^{w}*arawa*

BM: Yamalele *walabo* 'shark' (expected form ***walawa*)
AT: Gapapaiwa *k*^{w}*arabo* 'shark' (expected form ***k*^{w}*alawa*)

Borrowed form **kaibo* (expected PCP form ***kwarawa*)

NWCP: Roro *kaipu* 'dugong' (expected form ***aeaba*); E. Mekeo *kaifu* 'shark' (expected form ***ʔolafu*)

The reconstruction of the borrowed form **kaibo* above assumes that, as in the languages of the Kilivila/Lousiades network, the medial liquid reflected in Gapapaiwa *k*^{w}*arabo* had been palatalised before borrowing. The application of sound changes is tabulated below (I have not tabulated changes for the expected PCP form ***k*^{w}*arawa*, as the evidence that it did not occur is very clear):

PCP **k*, **ɣ*, **g*	> G/NWCP **ʔ*	–	
		Borrowed **kaibo*	
PCP **b*	> RKM **p*	RKM **kaipu* > Roro *kaipu*	
RKM **p*	> E. Mekeo *f*	E. Mekeo *kaifu*	

Here again we see that the assumption of borrowing at the NWCP interstage gives the correct outputs.

There are several other items where a rule-ordering analysis leads to the same result: that the application of rules to borrowed items is consistent with their having been borrowed

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25 It is probable that E. Mekeo, a land-locked language, borrowed *ulita* 'octopus' from Roro *urita*. I suspect that, if a much larger Mekeo data base were available, we would find more borrowings from Roro. E. Mekeo is the only CP language for which I have found a reflex of POC **tabi(r,R,l)a* 'wooden dish'. But the E. Mekeo form is *kapia* 'dish' (expected form ***ʔafi(n,l)a*), which cannot be directly derived from a borrowed form **tabi(l,ɣ)a* by any of the sound changes constituting Mekeo phonological history. If, on the other hand, we assume that the form was borrowed into NWCP and that the rule NWCP **t* > Roro *k* applied before the term was borrowed by Mekeo, then we have a plausible history.

when the NWCP network was still a unity. They are listed here with annotations regarding rule applications.

POC **donu* 'k.o. rock cod, coral trout, groper, *Epinephelinae* spp.' (Hockett 1976: Proto Central Pacific)

FIJ: E. Fijian *donu* 'k.o. rock cod, k.o. coral cod'; Rotuman *tonu* 'Peacock rock cod, *Cephalopholis argus*'

PPN **tonu* 'coral trout' (Hooper, this volume)
PPT **donu* (no non-CP reflexes known)
Borrowed form **dono* (expected PCP form **donu*)

WCP: Motu *dono* 'Queensland groper, *Promicrops lanceolatus*'
NWCP: Lala *dono* 'k.o. fish' (expected form **tonu*); Roro *tono* 'k.o. fish' (expected form **konu*)

The sound correspondence represented by the initial consonant of Motu *donu*, Lala *dono*, Roro *tono* is not the one reflecting PCP **d* (as we would expect if the term were directly inherited) but the one which normally reflects PCP **r* (< POC/PPT **s*). This means that **dono* was borrowed after the application of the sound changes PCP **d* > NWCP **t* and PCP **r* > NWCP **d*.

PPT **leqag*^{w}*a* 'sea, salt'

AT: Boianaki *neaga* 'salt'
BM: Diodio *leaya* 'salt'; Iduna *lahaya*, Kalokalo *lig*^{w}*ag*^{w}*a* 'sea'
DD: Dobu *le*ʔ*awa* 'beach'
SUA: Tubetube *dekawa* 'sand, beach'

Borrowed form **ria*ʔ*a* 'salt'

WCP: Gabadi *dia*ʔ*a*
NWCP: Doura *tia*ʔ*a*, Lala *dia*ʔ*a*

The criterial form here is Lala *dia*ʔ*a*, which tells us that the initial consonant correspondence is the same as the one found in the previous set, with the same implications.

POC **sapuru* 'k.o. fish, possibly goatfish, *Parupeneus* and *Upeneus* spp.'
PPN **hatulu* 'goatfish, most likely *Parupeneus* and *Upeneus* spp.' (Hooper, this volume)
PPT **savuru* (no non-CP reflexes known)
PCP **ravulu* 'k.o. fish' (borrowed form **tavuru*)

WCP: Motu *dahuru* 'k.o. fish'
NWCP: Roro *kapuru* 'k.o. fish' (expected form ***taburu*)

Here the Motu form is the expected reflex of PCP **ravulu*, but Roro reflects a borrowed form **tavulu*, to which the sound changes PCP **v* > RKM **b* and NWCP **t* > Roro *k* have applied. The fact that the borrowed form has an initial **t-* is not surprising: the lending language probably had **s-*, but as CP languages have never had a phoneme /s/, this was reinterpreted as **t-*.

POC **kaRapa* 'mullet; probably diamond-scaled mullet, *Mugil vaigiensis*'

Bel: Gedaged *gaḷef* 'k.o. sea fish with long grey and white stripes'
MIC: Woleaian *xeraf* 'diamond-scaled mullet, *Mugil vaigiensis*'
FIJ: E. Fijian *kava* 'diamond-scaled mullet, *Mugil vaigiensis*'

PPN **kafa* 'diamond-scaled mullet, *Mugil vaigiensis*'

PPT **(k,q)arava* (no known non-CP reflexes)

Borrowed form **kalava* (expected form **(k,y)alava)*

SK: Balawaia *kalava* 'mandarin fish, *Callionymus* sp.'
WCP: Motu *karava* 'k.o. fish'
NWCP: Roro *heroba* 'k.o. fish' (expected form ** *?araba*)

The Roro form shows that borrowing occurred before the application of PCP **v* > RKM **b* and of NWCP **k* > *h*. (Borrowing into Motu occurred after PCP **v* > Motu *h*.)

There are occasions when a rule-ordering analysis can help to disambiguate a difficult loan history. The two sets below are drawn up on the basis of Occam's razor (i.e. assuming the simplest sequences of changes), but this may not reflect what actually occurred.

PPT (?) ***tavar* 'reef'

BM: Yamalele *tawala*, Bwaidoka *tawali*
AT: Tawala *tawali*
DD: Duau *tehala*
SUA: Sariba *tahali*
KL: Misima *taval* 'island'

Borrowed form **tawala*

WCP: Gabadi *kavara* 'sand'
NWCP: Doura *kavara* 'sand'

PPT (?) ***dabar* 'reef'

BM: Yamalele *dabala*
DD: Dobu *dabala*

Borrowed form **tabal(a,e)*

NWCP: Roro *kapare*

PPT (?) ***tavar* is reconstructed on the basis of the forms listed here (there are no known non-PT cognates), on the assumption that final-vowel alternation between *-a* and *-i* reflects added vowels following a PPT final consonant. This presupposes that Bwaidoka, Tawala *tawali* is borrowed from a Suauic language where the added vowel is *-i*. Gabadi, Doura *kavara* appears to reflect a borrowed NMDX form **tavala*.

PPT (?) ***dabar* is similarly reconstructed, and provides a source for the borrowing of Roro *kapare*.

It is almost self-evident, however, that the putative PPT forms ***tavar* and ***dabar*, both meaning 'reef', did not co-exist, but reflect a single etymon. On the basis of the correspondences in Appendix A, the simplest hypothesis is to reconstruct PPT **davar*, making the assumptions that (i) the *-b-* of *dabala* reflects a loan from a language in which PPT **-v-* was reflected as [b], and (ii) the *t-* of *tawala*, etc. reflects a loan from an Are/Taupota language, where PPT stops are normally devoiced.

The assumption that Gabadi, Doura *kavara* and Roro *kapare* are borrowed from different non-CP forms also follows from the application of the comparative method, since Gabadi, Doura *k* and Roro *k* normally never correspond. However, it is quite plausible that they are

related as the result of loan within the WCP network, and this is what we wish to check by rule-ordering analysis.

The result is interesting. Roro *kapare* is derived from the borrowed form **tabal(a,e)* by the application of the sound changes PCP **b* > RKM **p* and NWCP **t* > Roro *k*. Note that the borrowed form here must be reconstructed with initial **t-*. If, on the basis of the non-CP reflexes, we posit a borrowed form with initial **d-*, we find on examination of Figure 2 that there is no attested sound change which will generate Roro initial *k-*. This implies that the borrowed form again reflects Are/Taupota stop devoicing.

The analysis of the Roro reflex again points to a loan at the NWCP interstage. When we turn to the analysis of Doura *kavara*, however, we encounter a difficulty. The only sound change which will generate Doura *k-* is PCP **t* > NWCP **k*. In other words, where all the other cases we have examined were apparently borrowed at the NWCP interstage, we must here posit an earlier loan – at the Gabadi/NWCP interstage. It seems so implausible one item should have been adopted earlier than all the others that it is preferable to look for an alternative hypothesis. The one which offers itself is that the form borrowed by Doura was something like **kabare*, the intermediate stage in the development of the Roro form, that is, this is a case of secondary borrowing within the NWCP network, not a special case. (Note that as Gabadi was never a part of the NWCP network, derivation of Gabadi *kavara* does not give rise to the same difficulty.)

One consequence of this analysis is that the forms from which PPT (?) ***tavar* 'reef' was reconstructed above are irrelevant to the reconstruction of the CP forms. However, it is not the tracking down of this piece of detailed history that is important here, but simply the fact that a rule-ordering analysis, especially when it is applied to a number of etyma, can be of considerable use. I have illustrated here that it can be used to illuminate apparent inconsistencies. And in the present context I have shown that it can also be used to determine the interstage in the phonological history of a language group at which borrowing occurred.

4. MARITIME AND TERRESTRIAL TERMINOLOGIES AND CULTURE HISTORY

4.1 PULLING SOME THREADS TOGETHER

The analysis of loans in CP languages has proven to be a difficult and in parts complicated process. However, as well as illustrating how tricky the analysis of loans can be, it does allow us to make a number of inferences about the culture history of CP speakers.

Firstly, the presence of non-CP loans in CP languages indicates substantial contact between CP speakers and speakers of one or more non-CP languages. Secondly, there is a fairly strong tendency for loans to show signs of an origin in the Are/Taupota (i.e. Collingwood Bay) area. Thirdly, these loans entered CP languages at a time when the Nuclear West Central Papuan network had not yet dispersed into its present-day member languages. The sound changes which characterise the Nuclear West Central Papuan network had already taken place, but those which characterise its member languages had not. These findings fit well with the archaeological scenario that there was some kind of cultural upheaval about a thousand years ago in both the Collingwood Bay and CP areas, and support Swadling's suggestion that the two were associated: non-CP speakers from Collingwood Bay brought innovations to Central Papua.

One impetus for the idea that there had been a hiatus in the sea-going activities of CP speakers arose from the observations (i) that no word for 'fish' as a generic category is reconstructable in PCP, (ii) that there are no clear CP reflexes of POC **ikan*/PPT **iqan* 'fish', and (iii) that there is a cognate set in CP languages, some of whose members mean 'fish' and others 'wallaby'. However, the idea that these changes resulted from a cessation of fishing is directly contradicted by the large number of terms for individual fish species in section 4.2.1, some of which have so clearly undergone CP sound changes that they must be directly inherited. For example, the reflexes of PCP **vai* 'Spanish mackerel, *Scomberomorus* spp.' from POC **walu*, and PCP **rae* 'k.o. mackerel or large-scaled tuna, *Rastrelliger* sp.' from POC **jala(la)* clearly reflect the distinctive changes which POC **l* underwent in PCP.

Instead, reflexes of PPT **iqan* perhaps disappeared for language-internal reasons. The expected PCP form for 'fish' is ***iɣa*, which in all languages except Sinagoro, Keapara and Motu would become ***ia* or **[ya]. This phonological attrition (together with the fact that PCP **ia* is the third person singular pronoun) may explain why PCP ***iɣa* was replaced independently in all CP languages. Circumstantial evidence for this explanation is supplied by the fate of PPT **iqan* in non-CP languages. In most of these languages attrition is prevented by retention of the final **-n* and addition of **-a* (e.g. Gumawana, Dobu, Are, Tawala *iana*, Bwaidoka *igana*). However, in Nimoa and Sudest, PPT final consonants are regularly lost, and it is precisely in these languages, where the expected reflex is ***ia*, that replacement has occurred: Nimoa has *yarugi* (which may be a compound **ia-rugi* rather than a replacement) and Sudest *bwarogi*. In the Suauic network, **-i*, rather than **-a*, is added after a final consonant, giving Proto Suauic **ihani*. In some dialects, however, **-n-* is deleted before **-i*, resulting in **ihai*, reflected in Tubetube *ie*. In Daui, however, where a similar attrition is expected, it has been replaced by *moya*. There is thus some evidence that attrited forms are liable to be replaced.

There is evidence that PCP **iɣa* did occur, at least in compounds. The cognate set listed under POC **taRat* 'unicornfish, *Naso* spp.' in section 4.2.1 includes Gumawana *ia-tala* 'short snouted unicorn fish, *Naso brevirostris*', reflecting PPT **iqan-tarat* (i.e. a compound of ***iqan* 'fish' and *tarat* 'unicorn fish'). We would expect a PCP reflex ***iɣa-tala*, but what we actually find is a metathesised form **iɣa-lata*, which has the literal meaning 'long fish'.

The words which have replaced PCP **iɣa* in CP languages are:

Magori	*orebe*
Ouma	*orabe*
Taboro	*beki*
Balawaia	*mayani*
Maopa	*mayani*
Hula	*mani*
Motu	*g^{w}arume*
Lala	*sisi* 'fish, meat'
Doura	*sisi-ni-vei*
Gabadi	*vea*
Roro	*maia*
Kuni	*moke*
E. Mekeo	*ma?a*
W. Mekeo	*maka*

I do not know the origin of most of these forms. However, Balawaia, Maopa *mayani*, Hula *mani* reflect PCP **mayani* 'wallaby, *Macropus agilis*'. The change in meaning is starkly reflected within the Sinagoro dialect network, where *mayani* means 'fish' in the coastal Balawaia dialect, but 'wallaby' in inland Taboro. That 'wallaby' was the PCP meaning is indicated by the distribution of other reflexes meaning 'wallaby': Magori *magani*, Motu *mayani*, Mekeo *mani*. The switch in meaning to 'fish' is probably explained as follows. The wallaby is the main source of land-based protein, and the etymon consequently acquired the extended meaning 'protein food',[26] which included fish. When fish became a community's main protein food, the meaning narrowed to denote only sea-based protein. This explanation is in keeping with evidence that the Sinagoro and Keapara have been under pressure from inland (non-Austronesian) neighbours which has pushed some groups towards the sea, and pushed the Hula right off the land.[27]

Lala *sisi* and Doura *sisi-ni-vei* have a similar explanation: both are reflexes of PPT **jiji* 'flesh, protein food', and have undergone a narrowing of meaning. Doura *sisi-ni-vei* means 'protein food of water', and contains a reflex of the POC **ni*, the preposition whose function is to connect an attributive noun to its head noun (Hooper 1985), as it does here.

Although there was evidently no hiatus in CP maritime activities, it is perhaps significant that a majority of the loans I have identified are associated with the sea and with maritime activities:[28]

**damena* 'salt' (also directly inherited PCP **rama*)
**dono* 'k.o. rock cod, coral trout, groper, *Epinephelinae* spp.'
**kalava* 'k.o. fish'
**kanaye* 'tern' (also directly inherited PCP **yanawe*)
**kau*, **kauli* 'fish-hook'
**kimai* 'shell fish-hook'
**kulig(a,i)* 'rudder, steering paddle, steer' (also directly inherited PCP **gui*)
**kwayava*, **kaibo* 'shark'
**lima* 'bailer'
**nute* 'squid'
**rawala* 'sea' (also directly inherited PCP **rawa*)
**ria?a* 'salt'
**rogo* 'anchor'
**tabal(a,e)* 'reef'
**tavuru* 'k.o. fish' (also directly inherited PCP **ravulu*)
**(y)ulita* 'octopus'

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26 It is possible, as Ross Clark suggested at the Symposium, that PCP **mayani* contains the PCP root **yani* 'eat', and that the basic meaning of **mayani* was 'protein food'. If so, its history parallels the early history of PAN **Si-kan* 'fish' (> POC **ikan*), which is the instrumental form of the verb **kaən* 'eat' (Zorc, this volume).

27 There is broad agreement that CP speakers, many of whom depended at European contact on the sea for their livelihood, had earlier practised agriculture on the hinterland, and were then pushed back to the coast by the expansion of non-Austronesian speakers from inland. Ilagi (1975) and Rageau (1976) report a Keapara history to this effect; Allen (1977b) and Bulmer (1971, 1979) report evidence that Austronesian speakers once occupied an area stretching inland from what is now Port Moresby.

28 I have excluded the Hula reflexes of PPT **qai-war(a)* 'boat pole' and **qai-poli* 'k.o. canoe' as they appear phonologically to represent a much more recent stratum of loans.

Loans associated with the land are:

*diyara 'fat, coconut oil' (also directly inherited PCP *diya)
*kaye 'male (green) *Eclectus* parrot'
*kokokoko 'cassowary' (also directly inherited PCP *guya-g(uy)a)
*kulu 'grass'
*leta 'nit'
*pune 'pigeon'
*yunu 'breadfruit'
*vatila 'k.o. pandanus'

If we compare the proportion of maritime loans to terrestrial loans with the proportion between the directly inherited items in sections 4.2 and 4.3, then we see that the loans are biased towards items associated with the sea. Thus although there was no hiatus in CP maritime activities (indicated by the fact that a number of loans co-exist with a directly inherited reflex of the same PPT etymon), it does appear that the intruders who brought the loan words had an impact on their CP cousins in domains which had to do with the sea.

It also seems that loans can sometimes be quite arbitrary. Why was *leta 'nit' borrowed, when PCP inherited the term *yutu 'louse' (section 4.3.1)?

I list below reconstructions of directly inherited etyma associated with the sea (section 4.2) and with the land (section 4.3), together with supporting data. Where a comment is required, it follows the etymon to which it refers. Whilst we can be reasonably certain that the items listed above are loans, it is worth bearing in mind that some of the items listed below as directly inherited are probably also loans. This applies (as we saw in the case of PCP **yulita 'octopus') especially where a putative protoform consists of segments which are not subject to significant sound changes.

The study of these terms provides a few hints about CP culture history.

Three terms reconstructed in section 4.3.2, namely PCP *baleyo 'sago', *mavo 'long yam' and *uve 'seed yam', derived respectively from PPT *bareqo 'breadfruit', *mavo 'taro' and *uve 'taro tops for planting', entail a shift in meaning from one food plant to another. We cannot be certain of the meaning of PCP *baleyo ('sago starch'?), as its reflexes occur only in West CP languages and PCP *labia denotes the sago palm. However, PCP *mavo seems to have completely displaced PPT *quvi 'long yam' (POC *qupi), and possibly indicates that PCP culture did not include taro (and the use of a borrowed form *yunu for breadfruit may indicate that it did not include this protein source either). Interestingly, Motu *talo* 'taro' is one of only three known Western Oceanic reflexes of POC *talo(s) 'taro', and is probably a borrowing either from an Eastern Oceanic language or from English (or an English-based pidgin).

One curious loss is PPT *vudi 'banana' (< POC *pudi), since the banana is a major food crop in the CP area. However, the terms which have replaced it appear to be directly inherited, and suggest that there was probably continuity of cultivation: NWCP languages use reflexes of PCP *toyo(na) 'k.o. banana' (< PPT *tawai), and Motu *dui* 'banana plant' reflects PCP *dui 'banana shoot, plant' (< POC *(s,j)uli(q) 'banana or taro sucker').

Another intriguing loss is PPT *waga 'large sailing canoe' (< POC *waga). Motu has three canoe terms: *layatoi* is a large sailing vessel made by lashing together three or more hulls, *vanayi* is a small outrigger canoe, and *asi* (from PPT *kati, POC *kati(R)) is a medium-sized outrigger canoe. The etymologies of *layatoi* and *vanayi* are unknown,

although *layatoi* contains *toi* 'three', presumably denoting its three hulls. Did PCP speakers lose from their technology the **waga*, and only later acquire the *layatoi*? It is possible that the loss of PPT **saman* 'outrigger float' (< POC **saman*) occurred in this context, that is, that it was a part of the **waga*, rather than of the **kati* (whose outrigger was called **sarima(n)* in PPT). If the inference that PCP culture entailed a simplification of canoe technology is correct, then another fact can also be accounted for. The first is that PPT **laya* 'sail' (POC **layaR*) has only one CP reflex, namely Motu *lara* (for expected ***lala*). There is no obvious source of borrowing, and medial *-r-* could be attributed to dissimilation, but this is not a regular process in Motu. Other CP languages have no cognates. Instead, we find Keapara, Motu *palai*, Gabadi, Roro *parai*, borrowed via the lingua franca Police Motu from English '(canvas) fly'. This is accounted for, however, if the PPT **laya* was a part of the lost **waga*, and Motu *lara* a more recent loan.

4.2 DIRECTLY INHERITED ETYMA ASSOCIATED WITH THE SEA

4.2.1 MARINE FAUNA

POC **qasaŋ* 'gill' (Dempwolff 1938)
PPT **qasa-* (no non-CP reflexes found)
PCP **ara-*

WCP: Motu *lada-*

POC **qunap* 'fishscale' (Dempwolff 1938)
PPT **qunav*

DD: Duau *kunaha*
AT: Tawala *wenawa*
BM: Diodio *kwanava*

PCP **yuna-*

SK: Hula *yuna-*
WCP: Motu *una-*
NWCP: Lala *una-*, Roro *una-*, Kuni *una-*, E. Mekeo *una-* '(fish) eyeball'; N.W. Mekeo *ona-*

PCP **yunav(i)* '(scale (fish)'

SK: Maopa *unav(i)*, Hula *yunav(e-)*

PPT **t[u,i]riqa(-)* 'bone, fish bone'

AT: Maisin *turi*, Are *sirike*, Wagawaga *sili?e-*, Boianaki *tuyiri-* (metathesis), Gapapaiwa *tuiri-* (metathesis)
KAK: Kakabai *sili?e-*, Dawawa *turiya*

PCP **t[u,i]liya-*

OM: Magori *tiria*
SK: Hula *iliya-*, Balawaia *turiya-*, Taboro *turiga-* 'fishscale'
WCP: Motu *turia-*, Gabadi *kuria-*
NWCP: Lala *kulia-*, Roro *hulia-*, Kuni *kulia-*, E. Mekeo *unia-*

The POC term for 'bone' was **tuqan*, which is apparently derived from PMP **tuqəlan* (via **tuqlan*, then cluster reduction). This is reflected as PPT **tuqa-*, PCP **tuya-*, but the

latter has only one known reflex, Ouma *tuʔa*.[29] The term PPT **t[u,i]riqa(-)* 'bone, fish bone' seems to have competed with **tuqa-*, and almost entirely displaced it in early CP. It seems to be derived from PWO **tu(r,R)i* 'sew',[30] and I take it that **t[u,i]riqa* originally meant 'needle', and, since needles were made from bone, became generalised to 'bone'. The formal similarity of PWO **tu(r,R)i* 'sew' to POC **suri* 'sew' and PMP/POC **suRi* 'bone' may well have abetted this development.

POC **biRa(s)* 'roe, fish eggs' (Blust 1980a:54)
PPT **bira(s)*
AT: Keherara *bile-*
PCP *bila
SK: Hula *pila*
WCP: Motu *bila* 'fish spawn'

POC **bakewa* 'shark'
PPT **baqewa*
AT: Wedau *vaɣewa*
DD: Duau *baewa*
SUA: Sariba *baewa*
KL: Misima *baewa*
PCP **baɣewa*
SK: Balawaia *baɣewa*, Hula *paewa*, Maopa *pawa*
OM: Ouma *baea*

This etymon co-existed with loans derived from POC **karawa* (section 3.2.2).

PMP **maŋiwa(ŋ)* 'shark'[31]
POC **maŋiwa(ŋ)*
SES: To'ambaita *maŋeo* 'shark'

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29 Reflexes of PWO **tuqan* 'bone' include:
WLZ: Bola *tuya*, Nakanai *tua* 'bone; rib'
NI: Tigak *tuan*
NWS: Taiof *tuan(a)*, Torau *tua*
PPT **tuqa-*
BM: Bwaidoka *tuya*
DD: Sewa Bay *tua-tua-*
SUA: Tubetube *tua-tua-*
KL: Misima *túwatúwa*

30 Reflexes of PWO **tu(r,R)i* 'sew' include:
BV: Vitu *turi*
Bel: Dami *tiri*
MKM: Wampur *-rur*
PPT **turi*
SUA: Daui *(ha)tuli* 'weave (= cause to thread)'
PCP **tuli* 'sew'
OM: Magori *turi*
SK: Hula *uli*, Balawaia *tuli*
WCP: Motu *turi*, Gabadi *kuri*
NWCP: Lala *kuli*, Kuni *kuli*

31 The PMP reconstruction is made on the basis of the Oceanic evidence here and of reflexes in four Sulawesi languages, Gorontalo *muᵑgiyaŋ*, Buginese *maŋiwiŋ*, Wolio *moŋiwa*, Konjo *maŋŋihaŋ*, all 'shark' (Tryon, ed. 1994).

PPN **maŋoo* 'shark' (Hooper, this volume)

PPT **maŋiwa(ŋ)* (no non-CP reflexes known)

PCP **maŋewa*

WCP: Motu *mayoa* 'k.o. suckerfish, *Phtheirichthys lineatus*, *Echeneis naucrates*, *Remora remora*'

It is not clear how this etymon differed in meaning from POC **bakewa* and POC **karawa*.

POC **(riuŋ, ruiŋ)* 'dugong' (Dempwolff 1938; Blust 1978a)[32]

NGO: Gitua *rui*
SWNB: Psohoh *dioŋ*
Bel: Takia *rui*
NI: Tiang *iuŋ*

PPT **ruiŋ*

BM: Yamalele *luiga*

PCP **lui*

OM: Magori *rui*
SK: Maopa *rui*
WCP: Motu *rui*

PMP **taRaqan* 'squirrelfish, *Holocentrus* spp.' (Blust 1983-84a)

POC **taRaqan*

WLZ: Nakanai *talaha* 'k.o. fish' (Geraghty 1990)
PPN **taʔa* '*Holocentrus* sp., probably armoured soldierfish, *Holocentrus spinifer*' (Hooper, this volume)

PPT **taraqan*

GUM: Gumawana *tayawana*

PCP **tala(ya)*

WCP: Motu *tara* 'violet squirrelfish, *Holocentrus violaceus*'

POC **kuru(ru)* 'squirrelfish, *Holocentrus* and *Myripristis* spp.'

Bel: Gedaged *uḷu* 'crimson squirrelfish, *Myripristis murdjan*'
PPN **kuru* 'squirrelfish, *Myripristis* sp.' (Hooper, this volume)

PPT **kuru(ru)*

BM: Iduna *kululu(bawe)* 'k.o. fish' [*bawe* 'pig']

PCP **kulu(lu)*

SK: Hula *kurulu (kani)* 'nannygai, *Centroberyx affinis*'

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32 Dempwolff (1938) reconstructed PMP **duyuŋ*. Since PMP **uy* usually becomes Proto Eastern Malayo-Polynesian (PEMP) and POC **i*, the expected PEMP/POC form is **riuŋ*. However, forms reflecting PEMP/POC **ruiŋ* also occur (see Blust 1978b for PEMP; the Psohoh and Tiang reflexes here). It is debatable whether these are due to metathesis, or whether PMP **uy* is retained word-medially, giving PEMP/POC **ruyuŋ*.

WCP: Motu *kururu* 'squirrelfish, *Holocentrus*, *Ostichthys* and *Myripristis* spp.' (Oram, pers.comm.)

POC **qono* 'k.o. barracuda, sea-pike'

SES: To'ombaita *ono* 'slender sea-pike, *Sphyraena jello*'; Arosi *ono*
FIJ: E. Fijian *oŋo*, Rotuman *oŋo* 'barracuda, *Agrioposphyraena barracuda*'
PPN **ʔono* 'barracuda, *Sphyraena* spp.' (Hooper, this volume)

PPT **qono* (no non-CP reflexes known)

PCP **(ɣ)ono* 'k.o. fish'

WCP: Motu *ono* 'barracuda, *Sphyraenella chrysotaenia*' (Oram, pers.comm.)
NWCP: Lala *ono* 'k.o. fish'

POC **walu* 'Spanish mackerel, *Scomberomorus* spp.'

FIJ: E. Fijian *walu* 'Spanish mackerel, *Scomberomorus commersoni*'
PPN **walu* '*Scombridae*' (Hooper, this volume)

PPT **walu* (no non-CP reflexes known)

PCP **vai*

WCP: Motu *vai-na-vai-na* 'Spanish mackerel, *Scomberomorus* spp.'

POC **jala(la)* 'k.o. mackerel or large-scaled tuna, *Rastrelliger* sp.'

HG: Kela *(i)ⁿzala* 'Spanish mackerel, *Scomberomorus commersoni*'
SES: 'Are'are *talala* 'k.o. fish'
NCV: Nguna *salala* 'k.o. fish'; Uripiv *jelel* 'k.o. mackerel'
FIJ: E. Fijian *salala* 'k.o. mackerel, *Rastrellinger kanagurta*'

PPT **jala(la)* (no non-CP reflexes known)

PCP **rae*

SK: Balawaia *dae* 'a reef fish'
WCP: Motu *dae* 'k.o. mackerel, *Scomber* or *Rastrelliger* spp.'
NWCP: Roro *rae* 'k.o. fish'

POC **lasi* 'leatherskin, *Chorinemus* spp.'[33]

MIC: Kiribati *nari* 'leatherskin, *Chorinemus* spp.'
FIJ: E. Fijian *lai* 'k.o. river fish'
PPN **lai* 'slender leatherskin, *Chorinemus tol*' (Hooper, this volume)

PPT **lasi* (no non-CP reflexes known)

PCP **yari*

SK: Balawaia *ari* 'k.o. reef fish'
WCP: Motu *ladi* 'leatherskin, *Chorinemus* spp.'

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[33] Blust (1989a:133) reconstructs PMP **daRi* from Chamorro *hagi* 'a fish: *Scomberoides santi-petri* (family *Carangidae*); pompano or jack trevally' and from the Polynesian data. I am unable to reconcile this with the reconstruction I have made here.

POC *tasiwa 'Lutjanus sp.'
- FIJ: Rotuman *sasiva* 'black spot snapper, *Lutjanus monostignus*'
- PPN *ta?iwa 'black spot snapper, *Lutjanus monostignus*' (Hooper, this volume)

PPT *tasiwa (no non-CP reflexes known)
PCP *tariwa
- WCP: Motu *tadiva* 'paddle-tail, *Lutjanus gibbus*'

POC *sabutu 'k.o. fish, *Acanthopagrus*, *Lutjanus* or *Lethrinus* sp.'
- FIJ: W. Fijian *ðābutu* '*Lutjanus* and *Lethrinus* spp.'
- PPN *sa(a)putu '*Lutjanus* sp.' (Hooper, this volume)

PPT *sabutu (no non-CP reflexes known)
PCP *rabutu
- SK: Balawaia *rabutu* 'a reef fish'
- WCP: Motu *dabutu* 'black bream, *Acanthopagrus berds*'
- NWCP: Roro *tapuso* 'k.o. small, orange fish'

POC *kasika '*Lethrinus* sp.'
- SES: Kahua (S. Ana) *xasisa* '*Lethrinus elongatus*'
- MIC: Mokilese *katek*, Satawalese *yátik*, Carolinian *atix* 'large *Lethrinus* sp.'
- FIJ: W. Fijian *kaðika* '*Lethrinus xanthochilus*'; Rotuman *?asi?a* 'large *Lethrinus* sp.'

PPT *qasiqa (no non-CP reflexes known)
PCP *ɣariɣa
- SK: Balawaia *ari* 'a reef fish'
- WCP: Motu *adia* 'snapper, *Aprion virescens*; emperor, *Lethrinella microdon*'

POC *tiqau 'goatfish, *Mullidae* sp.' (Blust 1980a)[34]
- Bel: Gedaged *tik* 'k.o. goatfish, *Upeneus* sp.'
- NCV: Mota *tio* 'k.o. fish with barbules'
- MIC: Mokilese *je* 'k.o. goatfish'

PPN *tikawa 'fish sp.' (Hooper, this volume)
- PN: Tokelauan *tikava* 'k.o. goatfish, *Mulloidichthys* sp.'

PPT *ti(q)aw
- GUM: Gumawana *siwo-siwo* 'goatfish'
- AT: Are *siawa* 'fish'

PCP *ti(ɣ)o
- WCP: Motu *sio* 'goatfish, *Parupeneus* sp.'
- NWCP: Lala *si?o*, Roro *sio* 'k.o. fish'

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[34] The expected reflex of PMP *tiqau is POC *tiqo. This may mean that the POC form is an early loan from a non-Oceanic language, or that the PMP form was *tiqaqu. PPN *tikawa must (on phonological grounds) be a borrowing, but the meaning of the Tokelauan reflex indicates that it still referred to goatfish.

POC *mamin 'k.o. wrasse, *Labridae* spp.' (Blust 1986)
PPT *mamin
GUM: Gumawana *mamina*
PCP *mami
WCP: Motu *mami*

POC *wawa 'moorish idol, *Zanclus canescens*'
HG: Bukawa *i-ma^{m}ba?*
NCV: Lewo *ma-vava*
PPT *wawa (no non-CP reflexes known)
PCP *wawa
WCP: Motu *vava(bada)*

PMP *qumay 'unicorn fish, *Naso unicornis*' (Blust 1983-84a)
POC *qume
PPN *?ume (Hooper, this volume)
PPT *qume (no non-CP reflexes known)
PCP *ɣume
SK: Hula *ɣume*

PMP *taRat 'unicornfish, *Naso* spp.'[35]
POC *taRat
FIJ: E. Fijian *tā*
PNP: *taa(tifi) (Hooper, this volume)
PPT *(iqan)tarat
GUM: Gumawana *(ia)tala* 'short-snouted unicorn fish, *Naso brevirostris*'
PCP *(iɣa)tala (unattested), *(iɣa)lata*
PWCP *(iɣa)lata*
WCP: Motu *(ia)lata* 'unicornfish, *Naso unicornis*'
NWCP: Lala *(i?a)laka* 'k.o. fish'

(See discussion in section 4.1.)

POC *ñopuq 'stonefish, *Sysanceja* spp.' (Blust 1984c)
PPT *ñovu(q)
KL: Sudest *ño*

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35 The PMP reconstruction is inferred from the Oceanic evidence and from Chamorro *tataga?* 'unicornfish, *Naso unicornis*' (I owe the comparison to Geraghty 1990). Hooper reconstructs PNP *ta(a)tifi 'unicorn fish, *Naso* spp.'. This is evidently derived from PPN *taa (< POC *taRat 'unicorn fish') and PPN *tifi 'tip, point, extremity', and so PNP *taatifi may be reconstructed, since *(a) is disambiguated by the non-Polynesian evidence. The PNP addition of *tifi evidently occurred because reflexes of PPN *taa 'unicorn fish' would otherwise have become homophonous with those of PPN *taqa 'armoured soldierfish, *Holocentrus spinifer*' (POLLEX).

PCP *novu
WCP: Motu *nohu* 'estuarine stonefish, *Sysanceja trachynis*'
NWCP: Roro *nobu*

POC *baRu 'k.o. triggerfish, *Balistidae* spp.'
SES: Longgu *balu-balu*, To'ambaita *babalu*, Arosi *(bubu) barubaru* 'k.o. triggerfish, *Balistoides viridescens*'

PPT *baru (no non-CP reflexes known)

PCP *balu
SK: Balawaia *balu* 'big-spotted triggerfish, *Balistes conspicillum*'
WCP: Motu *baru-baru*
NWCP: Lala *balu-balu*, Roro *paru-paru* 'k.o. fish'

POC *qudu 'k.o. fish'
PPN *ʔutu 'grey jobfish, *Aprion virescens*'

PPT *qudu (no non-CP reflexes known)

PCP *ɣudu 'pufferfish, *Gastrophysus* sp.'
SK: Balawaia *ɣuru* 'pufferfish, *Gastrophysus* sp.'
WCP: Motu *ɣudu* 'giant toadfish, *Gastrophysus sceleratus*'; Motu *ɣudu(gini)* 'k.o. porcupinefish, *Diodontidae* spp.'
NWCP: Lala *utu* 'k.o. fish'; Roro *ʔuku* 'pufferfish, *Gastrophysus* sp.'

PMP *sumu() 'triggerfish, *Balistidae* (generic name)'[36]

POC *sumu()
VTZ: Tami *sum* 'k.o. triggerfish, *Pseudobalistes flavimarginatus*'
NCV: Mota *sumu(t)* 'k.o. fish'
FIJ: E. Fijian *ðumu* 'k.o. triggerfish, *Balistes* sp.'
PPN *sumu (Hooper, this volume)

PPT *sumu (no non-CP reflexes known)

PCP *rumu
WCP: Motu *dumu* 'k.o. triggerfish, *Rhinecanthus* spp.'

POC *buna 'k.o. pelagic fish' (Blust 1980a)
ADM: Aua *puna* 'k.o. fish, Tok Pisin *plangpis*'; Seimat *pun* 'large flat white pelagic fish'

PPT *buna (no non-CP reflexes found)

PCP *buna
WCP: Motu *buna* 'k.o. fish'

POC *ga(t,d)a 'k.o. fish'
PPN *kata 'k.o. trevally, *Caranx* sp., or growth stage of *Caranx*'

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[36] The PMP reconstruction is made on the basis of the Oceanic evidence here and of Belau *tuŋ?* 'triggerfish' (I owe the comparison to Geraghty, this volume).

PPT *g(w)a(t,d)a
KL: Sudest *ga-gata* 'k.o. fish'

PCP *gwa(t,d)a
SK: Balawaia *ɣwata* 'k.o. reef fish'
WCP: Motu *gwada* 'k.o. fish'

Trevally are reef fish, so the Balawaia gloss is consistent. The Motu form has *-d-* where **-*t-* is expected.

PPT *(q,k)^{w}arawa 'k.o. emperor, probably *Lethrinus* or *Lethrinella* sp.'
GUM: Gumawana *golao* 'striped emperor, probably *Lethrinus* or *Lethrinella* sp.'
BM: Iduna *kolawa* 'red-mouthed emperor, probably *Lethrinus* or *Lethrinella* sp.'
KL: Misima *aláwa* 'large fish with blue and yellow-green stripes'

PCP *ɣolawa 'k.o. fish'
SK: Balawaia *ɣorava* 'k.o. reef fish'; Hula *rawa* 'k.o. blue fish'
NWCP: Roro *oroba* 'k.o. fish'

POC *quraŋ 'prawns and crayfish' (Dempwolff 1938)
PPT *quraŋ
BM: Bwaidoka *uloɣa* 'crayfish'
DD: Dobu *ula(bo?a)* 'crayfish'
AT: Tawala *ule(tam)* 'crayfish'
KL: Nimoa *huye(bohe)* 'crayfish'

PCP *(ɣ)ula
WCP: Motu *ura* 'crayfish'

PMP *(k, q)umaŋ 'hermit crab' (Blust 1980a)
POC *(g,q)umwaŋ
PWO *gumwaŋ
Bel: Takia *gum*
MM: Tabar *guma*

PPT *guman
BM: Molima *gumana*
AT: Gapapaiwa *gumaɣa*, Tawala *guma-guma* 'hermit crab bait'
DD: Dobu *gumana*
KL: Misima *gu-gúman*

PCP *guma 'hermit crab bait'
SK: Balawaia *ɣuma* 'bait'
WCP: Motu *guma* 'bait'

POC *kobar 'k.o. (large?) hermit crab'
NWS: Tinputz *kubar* 'hermit crab'
SES: Bughotu *koba*, Tolo *ko-koba* 'hermit crab'
FIJ: W. Fijian *koba-koba* 'large red crab, found on reef flat'

PPT *kobar

AT: Meniafia *kabara* 'crabs', Gapapaiwa *kapari (gumayag)* 'large hermit crab'
KL: Misima *kovál* 'k.o. crab'

PCP *koba

WCP: Motu *ko-koba* 'crab'

POC *tubaRa 'large land crab (generic)' (Geraghty 1990)

MM: Tolai *tubara* 'land-crab'
SES: 'Are'are *opara* 'a crab'; Arosi *toba* 'species of land crab'
FIJ: Rotuman *fupa* 'land crab'; W. Fijian *tubā* 'generic for several species of land crab'
PN: E. Futunan *tupa* 'k.o. crab'

PPT *(t,d)ubara (no non-CP reflexes known)

PCP *dubala 'k.o. land crab'

SK: Hula *ropalo* 'swamp crab'
WCP: Motu *dubara* 'k.o. land crab'
NWCP: Lala *tubala* 'k.o. crab'; Roro *kopara* 'crab'

PMP *tiRem 'oyster' (Dempwolff 1938)
POC *tiRom
PPT *tirom

SUA: Sariba *siloma* 'oyster'

PCP *tilo

WCP: Motu *siro*
NWCP: Lala *silo*, Roro *si-siro* 'k.o. shellfish'

POC *yaRo(q) 'mother-of-pearl' (Grace 1969)

Bel: Biliau *yar-yar* 'black lip pearl oyster shell, *Pinctada maxima*'
NWS: Banoni *zanoyo* 'pearl oyster'
SES: Gela *aro* 'oyster'

PPT *yaro(q)

BM: Iduna *yaloyo* 'k.o. fish'

PCP *yalo 'k.o. shellfish'

SK: Hula *alo* 'shell necklace'
NWCP: Roro *ʔaro* 'k.o. shellfish'

PWO *ka(r,R)as 'mother-of-pearl (?)'

MM: Tabar *ara* 'pearlshell, oyster'; Madak *kalas* 'pearlshell'
SES: Arosi *gara* 'to cut out from shell, e.g. nautilus for inlaying'

PPT *qaras (no non-CP reflexes known)
PCP *(y)ala

SK: Hula *ala* 'species of shellfish'

POC *sala(ŋ,n)* 'sea urchin with long black spines, possibly *Diadema setosa*' (Pawley, forthcoming)
PPT **salan*
GUM: Gumawana *sanana* 'sea urchin'
AT: Tawala *hanana* 'black sea urchin'
KL: Kilivila *sanana* 'sea urchin'
PCP **raya*
WCP: Motu *dala* 'sea urchin'

POC **poñuq* 'turtle' (Dempwolff 1938)
PPT **vonuq*
AT: Wedau *vonu*
BM: Iduna *wonu*
DD: Duau *wonu*
KL: Kilivila *wonu*
SUA: Sariba *wonu*
PCP **vonu*
NWCP: Roro *bonu*

PPT **qayo-qayo* 'turtle'
BM: Iduna *gayo-gayo*
PCP **ɣao-ɣao*
SK: Balawaia *ɣao-ɣao*, Maopa *ɣao-ɣao*, Hula *ao-ao*

4.2.2 FEATURES OF THE COAST AND OCEAN

(See also POC **qone* 'sand, beach', PCP **kone* listed in section 3.2.2.)

POC **laje* 'k.o. coral' (Milke 1965, 1968)
PPT **laje*
KL: Sudest *la^{n}je* 'coral'
PCP **lase*
WCP: Motu *lade* 'coral'

POC **gi(r,R)i-gi(r,R)i* 'k.o. coral, coral rubble (?)'[37]
NGO: Lusi *gir-giri* 'variegated'
FIJ: E. Fijian *gere-gere* 'gravel'
PPN **kili-kili* 'gravel, usually coral rubble'
PN: Samoan *ʔiliʔili*, Tahitian *ʔiriʔiri*, Tongan *kilikili* 'gravel'; Nukuria *giligili* 'coral rubble'; Rennellese *kigikigi* 'pebble, gravel, coral rubble'

[37] The authors of the POLLEX file suggest that the Polynesian reflexes are derived from POC **kiri* 'rasp, grind'.

PPT **giri* 'coral'
- BM: Iduna *gili-gili* 'coral'
- DD: Dobu *gili-gili* 'coral broken'; Dobu *gili* 'coral'
- SUA: Daui *gili* 'coral'

PCP **gili* 'k.o. coral'
- WCP: Motu *giri-giri* 'coral'

POC **kalagam* 'seaweed' (Pawley, forthcoming)

PPT **qalagʷam*
- BM: Molima *kalagoma* 'k.o. seaweed'
- AT: Ubir *ka-karukum* 'seaweed'; Tawala *yalegʷama* 'k.o. seaweed, brown'

PCP **(ɣ)ayaga*
- WCP: Motu *alaga* 'seaweed like grass'

POC **qaRus* 'current' (Dempwolff 1938)

PPT **qarus*
- AT: Are *karu(vei)* 'carried by current'
- DD: Duau *kalusa*
- SUA: Tubetube *kalusi*
- KL: Misima *alui*

PCP **ɣalu* 'current'
- OM: Ouma *aru-ʔaru*, Magori *aru-aru(ipia)*
- SK: Hula *alua*
- WCP: Motu *aru*
- NWCP: Lala *alu*

POC **tasik* 'sea, salt water' (Dempwolff 1938)

PPT **tasiq* 'salt'
- BM: Iduna *tagiga* 'salt deposit on skin after bathing in sea'

PCP **tari*
- OM: Magori *tari* 'salt'
- SK: Hula *ari* 'tide'
- WCP: Motu *tadi* 'sea water'

POC **malino* 'calm' (Grace 1969)

PPT **malino*
- KL: Misima *mainu(m)* 'calm'

PCP **maino* 'calm'
- SK: Balawaia *maino*, Maopa *maino*
- WCP: Gabadi *maino*
- NWCP: Lala *maino*

POC *Ruap* 'tidal flow' (Milke 1968)

VTZ: Malasanga *rua*, Lukep *lu* '(water) flow'
MM: Tolai *ruap* 'breakers, breaking waves'
SES: Gela *lua*, Lau *lua* '(tide) flow in; high tide'
FIJ: E. Fijian *ua* 'tide, wave'

PPT **ruav* 'current'

DD: Dobu *(ma)lo-lo*, Sewa Bay *(ma)lo-lo*

PCP **la-loa* 'current'

WCP: Motu *ra-roa* 'flood, tidal flow'
NWCP: Roro *ra-roa*

POC **(kg)opu* 'pond, lagoon'

NWS: Solos *kopu-kopu*, Teop *hohua*, Nduke *koɣu* 'lagoon'
SES: Lau *ʔofu*, Are'are *ohu-ohu(a)* 'brackish water'

PCP **govu* 'lagoon, swamp'

SK: Balawaia *ɣou* 'lake'; Hula *kovu* 'pond, lake'
WCP: Motu *gohu* 'lagoon'; Motu *kopu-kopu* 'swamp, mud'
NWCP: Lala *ovu*, E. Mekeo *(ka)opu* 'swamp'; Doura *ʔohu*, Roro *obu* 'lagoon, pond'; Kuni *obu*, E. Mekeo *ofu(na)* 'pond'

POC **motu(s)* 'island' (Grace 1969)
PPT **motu*

SUA: Tubetube *mutu-mutu* 'sand'

PCP **motu-motu*

SK: Balawaia *motu-motu*, Maopa *mou*, Hula *mou*
WCP: Motu *motu-motu*
NWCP: Lala *motu-motu*, Doura *moku-moku*

The Lala form has *-t-* where ***-k-* is expected, suggesting that it is a Motu loan.

POC **sobu* 'descend, dive'

FIJ: E. Fijian *sobu*

PPT **sobu*

BM: Iduna *obu*
DD: Dobu *sobu*
AT: Tawala *hopu*

PCP **robu* 'deep'

SK: Balawaia *robu*, Hula *ropu-ropu*
WCP: Motu *dobu*

PWO **sosoR* 'dry reef, low tide'

BV: Bali *zozoro* 'coral'
WLZ: Bola *roro*, Meramera *soso* 'coral'

PPT **soso(r)* (no non-CP reflexes known)

PCP *roro 'low tide; tide (?)'
- SK: Taboro *roro* 'low tide'; Hula *roro* '(well) dry up'
- WCP: Motu *dodo* 'very high tide'
- NWCP: Roro *toto* 'high tide'

4.2.3 MARITIME ACTIVITIES AND MARITIME TECHNOLOGY

POC *paŋoda 'gather seafood on the reef', *p<in>aŋoda 'seafood gathered on the reef' (Clark 1991a)
PPT *vaŋoda 'gather seafood on the reef', *vigoda 'seafood gathered on the reef'
- AT: Gapapaiwa *vanota* 'net prawns'
- DD: Dobu *igoda* 'shellfish'
- KL: Kilivila *vigoda* 'shellfish'

PCP *vaŋoda
- WCP: Motu *haoda* 'to fish'

POC *kati(R) 'small canoe or canoe hull' (Dempwolff 1938; Pawley & Pawley, this volume)
- SCH: Manam *kati*

PPT *kati(r) 'outrigger'
- AT: Maisin *kaasi* 'paddle'

PCP *ɣati 'canoe, canoe hull'
- OM: Ouma *ʔahi* 'canoe'
- SK: Balawaia *ɣasi*, Taboro *gasi*, Maopa *ɣai*, Hula *ai* 'canoe'
- WCP: Motu *asi* 'hull of *layatoi* (large double-hulled canoe)'; Motu *asi-asi* 'temporary small double canoe'; Gabadi *asi* 'canoe'
- NWCP: Lala *asi*, Doura *asi* 'canoe'; Roro *ahi* 'canoe, hull'

POC *kiajo 'outrigger boom' (Milke 1968: *kiado; Ross 1988; Pawley & Pawley, this volume)
PPT *qiajo
- DD: Dobu *kiyas*
- AT: Are *kiato*
- KL: Kilivila *kiaro*

PCP *(ɣ)iado
- SK: Aroma *iaro*

POC *layaR 'sail' (Dempwolff 1938; Pawley & Pawley, this volume)
PPT *laya(r)
- GUM: Gumawana *naya*
- AT: Gapapaiwa *nala*
- DD: Dobu *naya*
- BM: Iduna *naya*
- KL: Kilivila *laya*

PCP *yaya
WCP: Motu *lara* (expected form **lala*)

POC *tari 'steer'
SES: Lau *tari*, 'Are'are *tari(roro)*
PPT *tari
AT: Ubir *tar* 'steer a canoe'
KL: Sudest *tari-tari* 'walk arm in arm because slippery'
PCP *tali
OM: Ouma *ʔari*, Magori *tari*
WCP: Motu *tari* 'steer, rudder'
NWCP: Lala *kadi*, Roro *hari* 'rudder'

PPT *sarima(n) 'outrigger float'
AT: Tawala *harima*
DD: Dobu *salima*, Duau *salime*
SUA: Sariba *salima*
KL: Misima *haliman*, Nimoa *saime*
PCP *ralima
OM: Ouma *rarima*
SK: Balawaia *dalima*, Maopa *ralima*, Hula *rarima-rarima*
WCP: Motu *darima*, Gabadi *garima*
NWCP: Lala *dalima*, Roro *tarima*

POC *(l,R)ujan 'load (cargo)' (Blust 1976b; Pawley & Pawley, this volume)
PPT *(q)usan
DD: Dobu *usa*, *usan(a)*, Sewa Bay *gusa*
PCP *uda 'load (cargo)'
WCP: Motu *uda-uda*
SK: Taboro *ɣura-udi*

POC *pose 'paddle' (Dempwolff 1938)
PPT *vose
AT: Ubir *boi*, Are *boe*, Tawala *woe*
BM: Iduna *woi*
DD: Duau *wose*
SUA: Sariba *wose*
KL: Kilivila *wola*, Misima *(i)wule*, Nimoa *vale*
PCP *vore
WCP: Motu *hode*, Gabadi *ode*
NWCP: Roro *bote*, E. Mekeo *poʔe*

PPT **leva* 'paddle'

BM: Molima *neva*
DD: Dobu *nea*
SUA: Tubetube *nea*
KL: Misima *leva*, Sudest *eva*

PCP **leva*

OM: Magori *reva*
SK: Taboro *rewa*, Balawaia *leva*, Hula *leva*, Hula *leva-leva* 'paddle about in canoe'

POC **pukot* 'seine net' (Blust 1972c)

NGC: Kove *puo* 'fishing net'
VTZ: Maleu *(na)pu* 'fishing net'
SCH: Manam *vu-vu* 'fishing net'
BV: Bali *vuɣoto* 'fishing net'
SES: Gela *vuɣo* 'fishing net'; Arosi *huʔo* 'large net, seine net'

PPT **vuqo(t)*

GUM: Gumawana *uwos(i)* 'net specific fish; net for fishing/trapping turtle'

PCP **vu(ɣ)o*

WCP: Motu *huo* 'wallaby net'

POC **bubu* 'fish-trap' (Dempwolff 1938)
PPT **bubu* (no non-CP reflexes known)
PCP **bubu*

SK: Taboro *bubu* 'fish-trap'

POC **reke* 'pocket of seine net' (Biggs 1965: Proto Eastern Oceanic **dreke*)

BV: Vitu *neke* 'fishing net; fish trap' (expected form ***reke*)
FIJ: E. Fijian *dreke* 'hollow or cavity of a thing'; Rotuman *reke* 'pocket of a seine net'
PN: Tongan *leke* 'small room or recess'; Rarotongan *reke* 'end of a net'

PPT **reke* (No non-CP reflexes known)
PCP **leke* 'fishing net'

SK: Balawaia *leke* 'fishing net'; Taboro *reke* 'fish net'; Hula *leke* 'big fishing net'
WCP: Motu *reke* 'fine fishing net, seine'; Gabadi *reʔe* 'fishing net'
NWCP: Roro *reʔe* 'fishing net'

PPT **karaŋudi* 'fishing spear'

AT: Meniafia *karaŋut*

PCP **kara(ɣ)udi*

OM: Ouma *karaudi*
SK: Hula *karauti* 'many-pointed fish spear'

4.3 DIRECTLY INHERITED ETYMA ASSOCIATED WITH THE LAND

4.3.1 TERRESTRIAL FAUNA

For simplicity's sake, I have treated all birds as terrestrial fauna. There do not appear to be any bird species listed here which would be unknown to a non-maritime population.

See also POC **kawak* 'dog', PCP (?) **kwa[i]wa* and POC **kusupe* 'rat' (Grace 1969), PCP **kuruve* (section 3.2.2). The dog was a late (post-Austronesian) arrival in many parts of Papua New Guinea, but evidently was part of the POC assemblage. Although the term for 'dog' is clearly a borrowing in many parts of the country (Mark Donohue, pers.comm.), I treat it as a directly inherited term here, because the PT sound correspondences are regular.

POC **joŋa* '(pig's) tusk' (Ross 1988)
PPT **joŋa*

DD: Dobu *dona* 'molar tooth'
BM: Molima *dona* 'ornament made from tusks'; Anuki *doga* '(animal) horn'
AT: Meniafia *tona* '(animal) horn'
KL: Muyuw *dog* '(animal) horn'

PCP **do(ŋ)a*

SK: Hula *roa* 'antler, tusk, horn'
WCP: Motu *doa* 'tusk'

POC **boRok* 'domestic pig' (Dempwolff 1938; Lynch 1991)
PPT **boroq* 'pig'

DD: Sewa Bay *bulukwa* 'pig'
BM: Bwaidoka *bulukwa* 'pig'
AT: Are *poro*, Gapapaiwa *poro* 'pig'
SUA: Tubetube *buluka* 'pig'
KL: Kilivila *bunukwa* 'domestic pig'

PCP **bolo* 'pig'

PWCP **bolo(ma)* 'pig'

WCP: Motu *boro(ma)*, Gabadi *boro(ma)*
NWCP: Lala *bolo(ma)*, Doura *boro(ma)*, Kuni *folo(ma)*

POC **bwawe* 'pig' (Grace 1969; Lynch 1991)

SES: Bauro *(a)bwo*, Faghani *bo*
NCV: Mota *ŋgoe* 'pig; male pig; any kind of quadruped'; Raga *poe*

PPT **bwawe*

DD: Dobu *bawe*
GUM: Gumawana *bao*
BM: Molima *bawe*, Yamalele *bawe*
KAK: Kakabai *bwawa*
SUA: Tubetube *bwawa*
KL: Muyuw *bawe*

PCP **bae*

SK: Balawaia *bae*, Taboro *bai*, Hula *pae*

PWO **mɑ[l,r,R]ibonji* 'flying fox'
- NI: Tiang *mələbɨŋ*, Nalik *məlbuŋ*
- Bel: Biliau *malboŋ*, Megiar *malaboŋ*
- SCH: Manam *malaboŋ*

PPT **mariboŋi*
- AT: Taupota *maliboi*
- SUA: Sariba *maliboi*

PCP **malibo(ŋ)i*
- SK: Taboro *mariboi*
- WCP: Motu *mariboi*, Gabadi *manubo?i*
- NWCP: Lala *malibo?i*, Roro *manubai* 'bat'

PWO **mɑo(pb)a* 'flying fox'
- ADM: Tench *mavo*
- NI: Notsi *maua*, Lamasong *mapa*, Madak *mua*

PPT **maɔ(verb)a* (no non-CP cognates found)

PCP **maɔba*
- OM: Ouma *maiba*
- SK: Hula *maopa*

PWO **se(r,R)a-se(r,R)a* 'sugar glider, *Petaurus breviceps*'
- Bel: Gedaged *saḷe-saḷe* [metathesised vowels]

PPT **sera-sera*
- BM: Molima *sela-sela*
- KL: Muyuw *led-led*
- AT: Gapapaiwa *sura-sura*

PCP **rilo-rilo*
- WCP: Motu *dire-dire*, *(ba)diro-diro* [dialect variants]
- NWCP: Roro *tsiro-tsiro*, E. Mekeo *kino-kino*

PWO **wakin* 'wallaby'
- NI: Konomala *uakin*, Tolai *okin*, Label *uakin*, Siar *uakin*
- VTZ: Mbula *wok*
- Bel: Bilibil *wei*, Gedaged *woi*
- HG Kaiwa *uai-vem*

PPT **waqin*
- BM: Bwaidoka *vaɣi(ta)*, Yamalele *vagi(tau)* 'opossum'
- KL: Kilivila *waila*

PCP **waɣi* 'wallaby, *Macropus agilis*'
- SK: Hula *waɣi* 'wallaby, *Macropus agilis*'
- WCP: Gabadi *vai(aru)* 'wallaby, *Macropus agilis*'

POC *m^waja 'bandicoot'(Ross 1989b)
PPT *m^waja
AT: Maisin *masa(uŋ)*
KL: Sudest *mwaja-mwaja*

PCP *m^wada 'bandicoot'
SK: Balawaia *mora*
WCP: Motu *mada*, Gabadi *moaga*
NWCP: Lala *more?ata*

POC **manuk-manuk* 'flying insect'
WLZ: Nakanai *malu-malu* 'ant, insect'
FIJ: W. Fijian *manu-manu (ni ðina)* 'night-flying moths'; W. Fijian *manu-manu (ni gwele)* 'animals living in the ground, such as worms, ants, etc.'

PPT **manuk-manuk*
BM: Molima *manu-manuwa* 'insects'

PCP **manu-manu*
SK: Hula *manu-manu*
WCP: Motu *manu-manu* 'insects, neetles'

POC **bebek* 'butterfly'
PPT **bebeq*
DD: Dobu *pepek^{w}a*
BM: Iduna *bebewa*
AT: Wedau *bebeu*
SUA: Tubetube *bebe*
KL: Kilivila *beba*, Sudest *bebi*

PCP **bebe*
OM: Ouma *bebe*, Magori *bebe*
SK: Balawaia *(kau)bebe*, Hula *pepe*
WCP: Motu *(kau)bebe*

PNWCP **bebe(lo)*
NWCP: Lala *(e)bebe(lo)*, Roro *pe(ro)-pe(ro)*, Kuni *(lo)fefo*, E. Mekeo *fefe*, W. Mekeo *pepe*

POC **ñamuk* 'mosquito' (Dempwolff 1938)
PPT **ñamuq*' (Ross 1988:207)
DD: Dobu *nem^{w}a*
BM: Molima *namo(kili)*, Iduna *nimoya*
AT: Minavega *nim^{w}ai*
SUA: Tubetube *nim^{w}ai*
KL: Kilivila *nimu*, Sudest *ñamo-ñamo* 'fruitfly'

PCP *ñamo
- OM: Ouma *nemo*, Magori *nemu*
- SK: Balawaia *nemo*, Hula *nemo*, Hula *(tai)namo*
- WCP: Motu *namo*

POC *laŋo 'housefly' (Dempwolff 1938)
PPT *laŋo (no non-CP reflexes known)
PCP *yaŋo
- WCP: Motu *lao*, Gabadi *ao(kama)*
- NWCP: Doura *rao(maka)*, Roro *ao(maha)*

POC *qalipan 'centipede' (Dempwolff 1924-25)
PPT *qaliᵛan
- DD: Dobu *ganihana*
- SUA: Sariba *ŋalihei*

PCP *ɣaiᵛa
- OM: Magori *aiva*
- SK: Balawaia *ɣaiwa*, Maopa *ɣaiva*, Hula *aiva*
- WCP: Motu *aiha*, Motu-H *ariha*
- NWCP: Kuni *aiba*, E. Mekeo *aipa*

POC *kutu 'hair louse' (Dempwolff 1938)
PPT *qutu 'louse'
- BM: Iduna *ʔutu*
- GUM: Gumawana *kutu*
- AT: Gapapaiwa *kutu*
- KL: Kilivila *kutu*

PCP *ɣutu 'louse'
- SK: Balawaia *ɣutu*, Taboro *mutu*, Maopa *u*, Hula *ɣuʔu*
- WCP: Motu *utu*
- NWCP: Lala *uku*, Doura *uku*, Roro *uhu*, Kuni *uku*, E. Mekeo *uu*

POC *tuma 'body louse'(Dempwolff 1938)
PPT *tuma
- AT: Gapapaiwa *tuma* 'louse'
- DD: Duau *tuma* 'louse'
- SUA: Sariba *tuma* 'louse'

PCP *tuma
- OM: Ouma *tuma*, Magori *tuma*

POC *lawa(q) 'spider' (Dempwolff 1938)
PPT *lawa
- BM: Iduna *nawaya*

AT: Gapapaiwa *nawaga*
KL: Sudest *lawa*

PCP **yawa-yawa*
SK: Maopa *(kal)wara-wara*
WCP: Motu *vala-vala* 'spider's web'
NWCP: Roro *aw-awa*

The Maopa and Motu forms both reflect a metathesis.

POC **ma-nipo*, **ni-nipo* 'wasp'
Bel: Takia *nini*
SCH: Manam *niniko*
ADM: Drehet *ninih*
SES: Bughotu *mañivo*, Lengo *manivo*, Sa'a *niniho*

PPT **manivo*
BM: Iduna *manibo* 'blue insect (type of mudwasp?)'

PCP **naniɣo*
SK: Balawaia *naniɣo*, Taboro *nanigo*
WCP: Motu *nanigo*
NWCP: Lala *nani$^{?}$o*

The PCP form seems to be a conflation of the two POC forms.

POC **punu-punu* 'wood-eating creatures'
NWS: Roviana *vuvunu* 'wood-eating worm'

PPT **(p,w)unu-(p,w)unu* (no non-CP reflexes found)

PWCP **wono-wono* 'termites'
WCP: Motu *vono-vono*
NWCP: Roro *bonu-bonu*, E. Mekeo *pono-pono*

POC **diwi(r,R)* 'k.o. small ant'
NI: Sursurunga *diu* 'centipede'
MKM: Labu *titi(nalo)* 'ant'
SES: Arosi *diudiu*, Bauro *siusiu* 'k.o. small brown ant'
NCV: Tangoa *ririu* 'red ant'

PPT **di(v,w)i(r)*
DD: Dobu *didi(yau-yau)* 'ant'
KL: Sudest ^{n}*jivə-*^{n}*jivəra* 'k.o. small ant'
AT: Basilaki *diwi-diwi* 'ants'

PCP **di(vi)*
SK: Taboro *didi(rima)* 'small black ants'

PNGO **droman(i)* 'leech' (Ross 1988)[38]

SWNB: Amara *(e)di-dmen*
HG: Mangga Buang *domaŋ*, Mapos Buang *domŋ*, Kumaru Mumeng *domeŋ*

PPT **doman(i)*

AT: Gapapaiwa *domeni*, Tawala *domani*
BM: Yamalele *domana*
DD: Dobu *domana*
KL: Nimoa *dome*

PCP **doma*

SK: Balawaia *roma*, Taboro *doma*, Maopa *roma*
WCP: Motu *doma*
NWCP: Lala *toma*, Roro *koma*

PNGO **(t,d)imʷan* 'worm, maggot'

VTZ: Tami *timoa*
HG: Yabem *(nɔm)temoa*, Kela *tumʷa*, Bukawa *duᵐbɔ*, Numbami *(mota)diŋan(a)*

PPT **dimʷan*

AT: Maisin *riwoo*, Are *dimo(gaga)*, Gapapaiwa *dimo(moga)*
GUM: Gumawana *dimʷala* 'garfish, *Hemirhamphus* sp.'
BM: Molima *dimʷa-mʷana*
DD: Dobu *di-dimʷana*

PCP **dimʷa*

SK: Balawaia *dimo*, Maopa *rimo-rimo*, Hula *rimo*
NWCP: Kuni *sima*

PCEMP **kapatən* 'caterpillar, grub'

CMP: Irarutu *kafatənə*

POC **kapato(n)*

NCV: Mota *vato* 'white grub found in dead trees, eaten'; Raga *avato* 'large white insect found in trees, edible'
FIJ: W. Fijian *yavato* 'wood-boring grubs'
PN: Tongan *ʔofato* 'k.o. white grub found in timber'; Samoan *ʔafato* 'large edible grub, found in dry trees'

PPT **qavato(n)* (no non-CP reflexes found)

PCP **kavato*

SK: Taboro *kavata* 'caterpillar'

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38 The New Guinea Oceanic forms for 'leech' appear to be cognate with Eastern Oceanic forms for 'sea anemone':
Proto Eastern Oceanic **droman(i,e)* 'sea anemone' (Pawley, forthcoming)
NCV: Mota *rumʷane*
MIC: Carolinian *rūmeș*
FIJ: Rotuman *nunami* 'edible sea anemone', W. Fijian *dromani* 'anemone (generic)'
PN: Samoan *lumane*

POC **mʷata* 'snake' (Grace 1969)
PPT **mʷata*
- AT: Gapapaiwa *mota*
- BM: Iduna *mota*, Molima *mʷata*
- DD: Dobu *mʷata*
- SUA: Sariba *mota*

PCP **(mota, mʷata)*
- OM: Magori *mota*, Bina *mota*
- SK: Balawaia *mota*

POC **puqaya* 'crocodile' (Dempwolff 1938)
PPT ** vuqaya*
- DD: Dobu *uaya*
- BM: Iduna *wayo(ŋo)*
- AT: Ubir *uwayo*, Wedau *iwaðo*, Tawala *mugaya*

PCP ** vuɣaya*
- OM: Ouma *uaŋai*, Magori *uae*
- SK: Taboro *ɣuɣaia*, Hula *vuɣa*, Maopa *vuara*
- WCP: Motu *huala*, Gabadi *ŋua*
- NWCP: Lala *vuala*, Roro *puaea*, Kuni *buaya*, E. Mekeo *ufala*

PPT **bʷabʷa(qa)* 'k.o. small lizard'
- KL: Sudest *bʷabo* 'green lizard'

PCP **bʷabʷaɣa*
- WCP: Motu *vaboa* 'gecko'
- NWCP: Lala *obuʔa* 'k.o. lizard'; Roro *papaʔa* 'lizard'

PWO **pa(r,R)ia* 'k.o. large lizard, monitor lizard (?)'
- VTZ: Pono *pari* 'k.o. large ground lizard'
- SCH: Manam *paria* 'k.o. big lizard'
- Bel: Gedaged *paziu* 'k.o. lizard, edible, skin used as drum head; may grow to seven feet long'
- NWS: Roviana *vari(lazu)* 'k.o. lizard'

PPT ** varia* (no non-CP reflexes found)
PCP ** valia*
- CP: Motu *aria* 'lizard (generic), monitor lizard'

PWO **pa(r,R)a* 'frog'
- Bel: Biliau *far* 'frog (generic)'
- NWS: Vangunu *para(goa)* 'large frog'

PCP **pala*
- OM: Ouma *(a)para-para*
- SK: Hula *pala(keo)*

WCP: Motu *para-para*
NWCP: Lala *ala(beto)* (expected form ***pala-*)

POC **tuna* 'freshwater eel' (Dempwolff 1938)
PPT **tuna*
AT: Tawala *tuna*
PCP **tuna* 'eel'
SK: Maopa *una*
NWCP: Lala *kuna*

POC **manuk* 'bird' (Dempwolff 1938)
PPT **manuq*
GUM: Gumawana *manuo*
DD: Dobu *manua*
BM: Iduna *manuya*
SUA: Sariba *manu*
KL: Kilivila *mauna*
PCP **manu*
OM: Yoba *manu*, Bina *manu*
SK: Balawaia *manu*, Taboro *manu*, Hula *manu*, Maopa *manu*
WCP: Motu *manu*, Gabadi *manu-manu*
NWCP: Lala *manu-manu*, Doura *manu*

POC **panic*, **pani-* 'wing' (Blust 1981d)
VTZ: Kilenge *vani-*, Sio *bani-*
Bel: Mindiri *bani-* 'wing, shoulder'
SCH: Kairiru *bani-*
MKM: Silisili *baic*, Sarasira *banit*
HG: Hote *banik*, Mapos Buang *banis*, Kumaru Mumeng *vanis*
PPT **(p,v)an(i,e)-*
KL: Kilivila *pini-pane-*, Sudest *pa-pene-*
PCP **van(i,e)-*
OM: Magori *vane-*
SK: Balawaia *vane-*, Hula *vane-*
NWCP: Doura *hani-*, Roro *bani-*, Kuni *bani-*, E. Mekeo *pani-*, W. Mekeo *bani-*

POC **ŋuju-* 'beak, snout' (Ross 1988)
PPT **ŋuju-* 'beak'
KL: Kilivila *kudu*
PCP **ŋudu-* 'beak'
SK: Hula *muru-*
WCP: Motu *udu-*
NWCP: Roro *isu-*

PPT *gubalim 'k.o. pigeon'
AT: Basilaki *gubalim* 'blue pigeon'

PCP *gubai
OM: Magori *gubai* 'pigeon'

POC *binam 'hornbill' (Clark, this volume)
SES: Bughotu *bina*, Longgu *bina*, Lau *bina*, Kwaio *bina*, 'Are'are *pina*

PPT *binam
DD: Dobu *binama*
AT: Tawala *binama*

PCP *bina
OM: Magori *bina*
SK: Balawaia *bina*, Taboro *bina* 'k.o. extinct bird'; Hula *pina*
WCP: Motu *bina*

PWO *bogi 'k.o. hawk or eagle'
Bel: Biliau *boog* 'white or brown bird, flies high and dives into the sea to catch fish', Takia *bog* 'hawk (black or brown)'
VTZ: Mbula *(man)^{m}boŋ* 'eagle'

PPT *bogi (no non-CP reflexes found)
PCP *bogi 'hawk, eagle, kite, hornbill'
WCP: Motu *bogi* 'kite'; Motu *bogi(bada)* 'hawk'
NWCP: Lala *bo^{ʔ}i(bata)* 'k.o. bird'; Roro *po^{ʔ}i* 'hornbill'; E. Mekeo *foi* 'eagle'

POC *kam^{w}a(g,q)a 'eagle'
NWS: Vanghunu *kamaga*, Sengga *kamaga*
SES: Gela *(manu)kama*, Sa'a *(si^{ʔ}o)m^{w}aa* 'k.o. eagle'

PPT *kam^{w}aga (no non-CP reflexes found)

PCP *ɣamo(g,ɣ)a
SK: Balawaia *ɣamoɣa*, Hula *amoa*

PPT *boqe 'crane, heron'
GUM: Gumawana *bowe(tuwa)* 'k.o. bird, possibly a white crane'
AT: Tawala *boi* 'crane'
KL: Kilivila *boi* 'grey crane, heron'; Sudest *boi* 'crane'

PCP *boɣe 'white heron'
SK: Taboro *boɣe* 'white heron'; Hula *poe(rupa)* 'white ibis'; Hula *poɣe* 'heron'; Hula *poɣe(kulo)* 'egret'
WCP: Motu *boe* 'pelican'
NWCP: Lala *boe* 'white heron'; Roro *poe*, E. Mekeo *foe* 'heron'

POC **kala(ŋ,g)a(r,R)* 'male (green) *Eclectus* parrot'

NI: Tabar *garagar*, Patpatar *kalaŋar* '*Eclectus* parrot', Tolai *kalagar*
BV: Vitu *ɣalaŋa* '*Eclectus* parrot'
SWNB: Amara *(a)kalaŋar*
Bel: Biliau *alaŋ* 'k.o. parrot'
ADM: Lou *karɛŋ* 'parrot'
SES: 'Are'are *ara* 'k.o. large green parrot' (expected form ** *ʔara(k,n)a*)

PPT **kalagar*

DD: Dobu *kanagala* 'parrot types (red, green, lory)'
BM: Yamalele *ŋanagala*
AT: Tawala *kanagala* 'large green parrot, lorikeet'
KL: Kilivila *karaga*, Nimoa *heleŋe*

PCP **ɣalaga*

SK: Balawaia *ɣalaga*, Hula *alaka* 'female lorikeet'
NWCP: Roro *ʔaea*, E. Mekeo *alaʔa*

POC **sipiri* 'k.o. small parrot'

NI: Patpatar *sirire* 'k.o. parrot'
ADM: Drehet *sihiŋ*, Lou *sipir* 'parrot-like bird'
SES: Bughotu *siviri* 'red parrot'; 'Are'are *siri* 'red female parrot'; Arosi *siri* 'k.o. parrot, *Lorius chlorocercus*'
NCV: Raga *siviru* 'coconut lory, *Trichoglossus haematodus*'

PPT **si(v,w)iri* (no non-CP cognates found)

PCP **divili*

SK: Balawaia *rivili* 'small green parrot', Taboro *riviri*
NWCP: Lala *sivili*, Roro *timiri*, E. Mekeo *tsipili* 'k.o. parrot, noisy'

PMP **kiu* 'plover or other wading bird' (Blust 1980a)

POC **kiu*, **kiwi*

NWS: Teop *kivi* 'frigate bird'
PN: Tongan *kiu* 'k.o. shore bird, *Pluvialis dominica*; wader (generic)'; Niuean *kiu* 'wader (generic), plover'; Tikopia *kiu* 'bristle-thighed curlew, *Numenius tahitiensis*'; Hawaiian *ʔiwi* 'Scarlet Hawaiian Creeper, *Vestiaria coccinea*'; Marquesan *kivi* 'shore bird which cries "kivi"'

PWO **kiwiwi* 'k.o. bird, sandpiper, *Tringoides hypoleucus*'

NI: Tabar *kuvivi*

PPT **kiwiwi*

AT: Are *kivivi*, Gapapaiwa *kivivi(dipa)*, Tawala *kiwiwi*
BM: Bwaidoka *kiwiwi*
DD: Dobu *kiwiwi*
KL: Nimoa *kiwiwi*

PCP **kiwiwi*

WCP: Motu *kivivi*

4.3.2 FLORA

POC *kayu 'tree' (Dempwolff 1938)
PPT *kayu
- AT: Wedau *ai*
- BM: Anuki *kai*, Iduna *ai*
- DD: Dobu *kaiwe*
- KL: Kilivila *kai*

PCP *ɣau
- OM: Ouma *ʔau*
- SK: Balawaia *ɣau*, Hula *au*
- WCP: Motu *au*
- NWCP: E. Mekeo *au*

POC *raun 'leaf' (Dempwolff 1938)
PPT *rau
- AT: Are *rau*

PCP *lau
- SK: Hula *lau*
- WCP: Motu *rau*
- NWCP: Kuni *lau*

POC *draqan '(tree) branch' (Dempwolff 1938)
PPT *daqa
- AT: Boianaki *taɣa-*

PCP *daɣa
- OM: Ouma *daga*, Yoba *da-daʔa*, Bina *daʔa-daʔa*
- SK: Hula *ra*
- WCP: Gabadi *ga* '(branch) fork'
- NWCP: E. Mekeo *ʔa-*, W. Mekeo *ka-*

The reflexes here, descended from POC *draqan, are exceptional, in that most Oceanic reflexes (including some PT reflexes) are descended from POC *raqan.

PWO *tukul 'tree stump, base'
- MM: Tolai *tikul* 'tree stump'; Tungak *tukul* 'base'

PPT *tuqu 'tree stump'
- AT: Tawala *tugu-tugu*
- KAK: Dawawa *tuɣu-tuɣu(nama)*

PCP *tuɣu-ka 'tree stump'
- OM: Yoba *tutuʔa*, Bina *tutu*
- SK: Saroa *tuɣuka*
- NWCP: Roro *hua-* 'tree trunk'; Kuni *kua*, E. Mekeo *ufa*, W. Mekeo *ua*

PPT *b^w*adi-* 'stump, base, reason'
- GUM: Gumawana *pasi-* 'reason'
- AT: Boianaki *bori-* '(tree) trunk'

PCP **badi*
- WCP: Motu *badi-* 'cause, tree stump'; Gabadi *badi-* 'tree stump'
- NWCP: Doura *bati-*, Kuni *fasi-* 'tree stump'

POC **Ramut* 'root' (Dempwolff 1926)
PPT **ramu*
- AT: Gapapaiwa *ram-ram*
- GUM: Gumawana *lam*
- DD: Dobu *lamu*
- SUA: Sariba *lam-lam*
- KL: Kilivila *lamu*

PCP **lamu*
- OM: Magori *ramu-ramu*
- SK: Balawaia *lamu*, Taboro *ramu-* 'buttress root'; Maopa *lamu-lamu*
- WCP: Gabadi *ramu*
- NWCP: Lala *lamu*, W. Mekeo *namu*

POC **puaq* 'fruit' (Dempwolff 1938)
PPT **vua-*
- AT: Gapapaiwa *ua-*, Tawala *ugo-*
- BM: Iduna *ua-*
- DD: Dobu *ua-*
- SUA: Bohutu *fua-*
- KL: Kilivila *ua-*

PCP **vua-* 'seed'
- SK: Balawaia *uo-*, Maopa *vua-*
- WCP: Motu *hua-hua-*
- NWCP: Doura *hua-*, Kuni *bua-*, E. Mekeo *pua-*, W. Mekeo *bua-*

PWO **pe(r,R)(a,e)* 'flower'
- WLZ: Meramera *vele-vele*
- NWS: Sengga *ve-vere*

PPT **vera*
- AT: Ubir *bera-*, Maisin *bera-*, Wedau *bera-*

PCP **vela*
- WCP: Motu *hera-hera*
- NWCP: Lala *vela*

POC **talo(s)* 'taro, *Colocasia esculenta* (syn. *Colocasia antiquorum*)'(Ross, forthcoming)
- WCP: Motu *talo*

I have pointed out elsewhere (Ross, forthcoming) that POC **talo(s)* hardly occurs in Western Oceanic. It is possible that Motu *talo* is a borrowing from an Eastern Oceanic language or from an English-based pidgin.[39]

POC **m^{w}apo(q)* 'taro' (Ross, forthcoming)
PPT **mavo*
KAK: Dawawa *mavu* 'taro'
PCP **mavo* 'greater yam, *Dioscorea alata*'
SK: Balawaia *mao* 'greater yam, *Dioscorea alata*'
WCP: Motu *maho* 'greater yam, *Dioscorea alata*'
NWCP: Kuni *mabo* 'greater yam, *Dioscorea alata*'

POC **up(e,a)* 'taro seedling' (Ross, forthcoming)
PPT **uve* 'taro tops for planting'
AT: Are *ube*, Gapapaiwa *uve*, Tawala *uwe* 'taro tops for planting'
PCP **uve* 'seed yam'
SK: Hula *uve* 'seed yam'
WCP: Motu *uhe* 'the end of yam, kept for planting, any seed for planting'

Note that both PCP **mavo* and PCP **uve* refer to yams, whilst their PPT ancestors referred to taro.

POC **piRaq* 'giant taro, elephant ear taro, *Alocasia macrorrhiza* (syn. *Alocasia indica*)' (Blust 1972c)
PPT **viraq* 'k.o. taro'
GUM: Gumawana *vilava* 'taro'
KL: Kilivila *vilaga* 'variety of taro'
BM: Bwaidoka *vilaga* 'edible root resembling taro'
PCP **vila*
WCP: Motu *hira* 'large sp. of edible arum'

POC **(s,j)uli(q)* 'banana or taro sucker, slip, cutting, shoot (i.e. propagation material)' (Ross 1988)
PPT **juli(q)*
DD: Dobu *suli* 'taro'
AT: Tawala *huni* 'taro'
PCP **dui* 'banana shoot, plant'
SK: Hula *rui-* 'young banana shoot'
WCP: Motu *dui* 'banana plant'
NWCP: Roro *tsui(ara)* 'k.o. banana'; Mekeo *ui* 'domestic banana plant'

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39 Hiri Motu, the Motu-based pidgin of Papua, received input from policemen from the Solomon Islands, some of whom presumably spoke a SES language (Dutton 1985). John Lynch (pers.comm.) points out that it may also have copied items from Papuan Pidgin English.

POC **sakup* 'k.o. cooking banana: long with white flesh (presumably *Eumusa* group)' (Ross, forthcoming)
PPT **saqup*
PT: Gumawana *yagowa* 'a long non-sweet banana'; Taupota *hakova* 'banana'
PCP **da(ɣ)u*
SK: Taboro *daua* 'k.o. banana: white flesh'
WCP: Motu *dau* 'k.o. banana: very long'

POC **tawai* 'k.o. banana' (Ross, forthcoming)
PPT **tawai*
PT: Gumawana *towe(ga)* 'k.o. short non-sweet banana'; Gumawana *towe(nea)* 'k.o. short sweet banana'; Iduna *tawai(nega)* 'k.o. red banana'
PCP **toɣo(na)*
SK: Balawaia *(lewa)toyo* 'k.o. sweet banana'; Balawaia *toɣo(na)* 'k.o. yellow taro'
NWCP: Lala *ko?o*, Roro *u?u(na)*, Kuni *ko*, E. Mekeo *o?o* 'banana'

POC **baReqo* 'breadfruit fruit (?)' (French-Wright 1983: **baReko*; Ross, forthcoming)
PPT **bareqo*
AT: Tawala *beleha* 'breadfruit' (expected form ***baleho*)
PNWCP **baleɣo* 'sago palm'
NWCP: Kuni *faleo*, Lala *bale?o*, Roro *pare?o*

POC **Rabia* 'sago, *Metroxylon* spp., mainly *Metroxylon sagu* (syn. *Metroxylon rumphii*)' (Grace 1969)
PPT **rabia*
AT: Gapapaiwa *rapia*
BM: Bwaidoka *labia*
DD: Dobu *labia*
SUA: Sariba *labia*
KL: Kilivila *yabia*, Sudest *yabia*
PCP **labia* 'cooked sago (?)'
SK: Hula *lapia* 'cooked sago'; Maopa *lapia*, Taboro *rabia(buvea)* 'sago pancake cooked in leaves for bride price'; Taboro *rabia(daidavidagarana)* 'sago pudding'; Balawaia *labia*
WCP: Motu *rabia*, Motu *nau-rabia* 'tapioca'; Gabadi *rabia*
NWCP: Doura *rabia*

Note that this term seems to have been used in PCP both as the generic for sago and for cooked sago, whilst PCP **baleɣo*, reflex of POC **baReqo* 'breadfruit fruit (?)', was applied to the sago palm.

POC **qatop* 'sago thatch' (Dempwolff 1938)
PPT **qatov* 'sago leaf'
AT: Gapapaiwa *katova*, Ubir *atob* 'sago leaves'

PCP *(ɣ)ato
NWCP: Roro *aho* 'midrib sago leaf'

POC *niuR 'coconut (generic); coconut growth stage: ripe, brown but has not fallen yet' (Dempwolff 1938; Ross, forthcoming)
PPT *niur
BM: Molima *niula*, Kalokalo *niula* 'coconut'
DD: Dobu *niu* 'coconut'
GUM: Gumawana *niu* 'coconut'
AT: Tawala *neula* 'coconut'
SUA: Sariba *niu* 'coconut'
KL: Budibud *niu* 'coconut'
PCP *niu
SK: Balawaia *niu*, Taboro *niu*, Hula *niu* 'coconut'
WCP: Motu *niu* 'coconut tree and mature fruit'; Gabadi *niu* 'coconut'
NWCP: Lala *niu* , Doura *niu* 'coconut'

POC *karu 'coconut growth stage 5: green, drinkable' (Ross, forthcoming)
PPT *karu (no non-CP reflexes found)
PCP *kalu 'young drinking coconut'
SK: Hula *kalu* 'half ripened coconut'
WCP: Motu *karu*
NWCP: Lala *alu?alu*, Kuni *kalu*

PPT *dayo 'young drinking coconut'
AT: Are *daio(koa)*, Wedau *daðo*
PCP *dao
SK: Balawaia *rao*, Hula *rao*, Maopa *rao*

POC *tab^{w}a 'coconut growth stage 9: sprouted' (Ross, forthcoming)
PPT *tab^{w}a
DD: Dobu *tab^{w}a(luluto)* 'coconut sprouted'
GUM: Gumawana *tabo(na)* '8th stage: coconut that has sprouted'
PCP *tab(o,u)
SK: Taboro *(niu) tubu(na)*
NWCP: Roro *kapu*

POC *punut 'coconut husk; fibres on coconut husk' (Ross, forthcoming)
PPT *bunu
BM: Yamalele *bunu*
SUA: Daui *bunu*
PCP *bunu
SK: Balawaia *bunu*, Hula *punu*

WCP: Motu *bunu*
NWCP: Lala *punu*, Roro *punu*, E. Mekeo *funu* 'young drinking coconut'

POC **para(q)* 'coconut embryo' (Ross, forthcoming)
PPT **varaq*
BM: Iduna *valaga* 'seed inside coconut; old yam'
PCP **vala*
SK: Hula *vala* 'spongy ball inside sprouting coconut'
WCP: Motu *hara* 'brain, bone marrow'

POC **nuRut* 'sheath around base of coconut frond, used as strainer' (Ross, forthcoming)
PPT **nurut*
SUA: Sariba *lulusi*
PCP **nulu*
WCP: Motu *nuru*

POC **kiRe* 'coastal pandanus, *Pandanus tectorius* (syn. *Pandanus odoratissimus*)' (French-Wright 1983)
PPT **qire*
SUA: Sariba *kile-kile*
PCP **ɣele*
SK: Hula *ɣile*, Balawaia *ɣele(ka)*
WCP: Motu *gere-gere*, Gabadi *ʔere-ʔere*
NWCP: Doura *(hena)ʔere*, Roro *ʔere-ʔere*, Kuni *el-ele*

POC **wai* 'mango (generic)', POC **wai-wai* 'wild mango' (French-Wright 1983; Ross, forthcoming)
PPT **(wai)wai* 'mango'
KL: Kilivila *we-wa* 'mango'
PCP **(wai)wai*
SK: Taboro *ue(ka)*, Hula *waiwai* 'mango'
WCP: Motu *vai-vai* 'wild mango'

POC **quRis* 'Polynesian plum, hog plum, Tahitian apple, golden apple, *Spondias cytherea* (syn. *Spondias dulcis*)' (Ross, forthcoming)
PPT **quri(s)* (no non-CP cognates found)
PCP **ɣuli* 'k.o. tree'
WCP: Motu *uri* 'k.o. tree'
NWCP: Roro *ʔuri* 'k.o. tree: like mangrove, used in house-building'

POC *ñoñum 'Indian mulberry tree, *Morinda citrifolia*' (Blust 1978b)
PPT *nonu
GUM: Gumawana *nona* 'k.o. fruit'
BM: Bwaidoka *nono*
PCP *nonu
WCP: Motu *nonu*

PWO *pinuaq 'canarium almond, *Canarium* sp. (?)' (Ross, forthcoming)
MM: Patpatar *hinuai* 'canarium almond, *Canarium indicum*'
PPT *vinua(q)
PCP *vinu(a)
NWCP: Lala *viŋu* '*Terminalia catappa*'

POC *laqia 'ginger, *Zingiber officinale*' (French-Wright 1983)
PPT *laqia (no non-CP cognates found)
PCP *yaɣia
WCP: Motu *aɣi*
NWCP: Roro *aea(bu)*

POC *pijo 'a kind of edible wild cane or a reed, *Saccharum spontaneum* (?)' (Pawley 1978; French-Wright 1983)
PPT *vijo (no non-CP cognates found)
PCP *vido 'k.o. cane'
WCP: Motu *hido* 'a wild cane growing by the riverside'

POC *topu 'sugarcane, *Saccharum officinarum*' (Dempwolff 1938)
PPT *tovu
DD: Duau *tohu*
GUM: Gumawana *tou*
BM: Iduna *tou*
AT: Gapapaiwa *tom*, Tawala *tom*
KL: Kilivila *tou*
PCP *tovu
OM: Ouma *ʔou*
SK: Maopa *ovu*
WCP: Motu *tohu*

PNGO *b^wau 'bamboo'
NGO: Tuam *boi*
VTZ: Tami *b^wai*, Malasanga *bo(a)*
Bel: Biliau *buau*
SCH: Manam *buau-buau* '(house) wall'

PPT **bau*
- DD: Duau *baubau*
- AT: Wedau *baubau*
- SUA: Sariba *baubau*
- KL: Kilivila *bobau*

PCP **bau*
- SK: Hula *paupau*
- WCP: Motu *bau*, Motu *baubau* 'bamboo pipe'

POC **tupa* 'derris root' (Dempwolff 1938)
PPT **tuva*
- AT: Wedau *tuva*
- BM: Iduna *tuva*
- SUA: Tubetube *tuva*
- KL: Kilivila *tuva*

PCP **tuva* 'derris root'
- WCP: Motu *tuha*
- NWCP: Lala *kuva*, Roro *huba*

Proto Peripheral Papuan Tip **qub^{w}aq* 'k.o. tree'
- KL: Nimoa *hub^{w}ahi*, Sudest *ub^{w}a* 'tree'

PCP **yubo* 'k.o. tree: *Eugenia* sp.'
- SK: Balawaia *yuyubo*, Taboro *gugubo*
- WCP: Motu *ubo*

POC **buaq* '"betelnut", *Areca catechu*' (Dempwolff 1938)
PPT **buaq*
- KL: Kilivila *bua* 'areca nut'

PCP **bua*
- SK: Taboro *bua*

PWCP **bua-tau*
- NWCP: Lala *bua-kau*
- WCP: Gabadi *bua-kau*, Motu *bua-tau*

PPT **kero* 'k.o. tree'
- BM: Bwaidoka *kelo* 'k.o. tree, used for outrigger booms'

PCP **kelolo*
- WCP: Motu *keroro* 'k.o. tree'
- NWCP: Roro *eroro* 'k.o. tree'

PPT **magi* 'k.o. tree'
- GUM: Gumawana *magi* 'areca palm'
- DD: Dobu *magi* 'areca palm'

PCP *magi* 'k.o. tree: *Ficus* sp.'
WCP: Motu *magi* 'k.o. tree: *Ficus* sp.'
SK: Balawaia *magi* 'k.o. tree: *Ficus* sp.'

POC *na(r,R)a* 'k.o. tree, *Pterocarpus indicus* '(Blust 1980a)
PPT *nara* (no non-CP cognates found)
PCP *nala*
WCP: Motu *nara*

POC *toŋoR* 'mangrove, *Bruguiera* spp.'
PPT *toŋor*
AT: Maisin *toowo*
PCP *toŋo*
WCP: Motu *to-to* 'edible mangrove sp.'
NWCP: Roro *ho-ho*

POC *Reqi* 'k.o. grass, *Imperata cylindrica*' (Ross 1988)
PPT *reqi*
AT: Wedau *rei*
SUA: Sariba *lei(busu)*
KL: Kilivila *lei*
PCP *leɣi* 'grass'
WCP: Gabadi *rei* 'forest'; Motu *rei* 'grass'
SK: Balawaia *leɣi* 'grass'; Hula *leɣi*

4.3.3 TERRESTRIAL FEATURES

POC *koro* 'interior hills'
NWS: Mono-Alu *olo* 'mountain'
SES: Gela *ɣoro*, Lenggo *ɣo-ɣoro* 'mountain'
SWNB: Mok *oro* 'mountain'
PPT *qoro* (no non-CP reflexes known)
PCP *[ɣolo]ɣolo* 'mountain'
OM: Magori *oro* 'mountain'
SK: Balawaia *ɣolo*, Maopa *ɣolo*, Hula *olo* 'mountain'; Hula *olo-olo* 'hill'
WCP: Motu *ororo* 'mountain'
NWCP: Lala *lolo*, Doura *roro*, Roro *oio* 'mountain'

POC *qutan* 'forest' (Dempwolff 1938)
PPT *qudan*
BM: Bwaidoka *ɣudana*
KL: Misima *ulan*, Nimoa *uda*
PCP *ɣuda*
NWCP: Doura *uta*

WCP: Motu *uda*
SK: Balawaia *yuramata*, Hula *ura*
NWCP: Lala *(la)ʔuka* (expected form *ʔuta*), Kuni *(ya)uka*

POC **raRo(q)* 'clay' (Milke 1965)
NWS: Haku *lolo*, Uruava *raro*, Roviana *raro* 'cooking pot'

PPT **raro(q)* (no non-CP reflexes known)

PCP **lalo* 'clay'
WCP: Motu *raro* 'clay'

POC **kaput* 'dust, grey ash' (Grace 1969)
WLZ: Vitu *(ɣabu)ɣabu*, Bola *ɣavu* 'fog', Vali *(ɣavu)ɣavu* , Meramera *kavo* 'grey ash'

PPT **kavu(t)* (no non-CP reflexes known)

PCP **kavu*
OM: Ouma *kau*, Magori *kau* 'dust, grey ash'
SK: Balawaia *kaɣu*, Hula *kavu* 'grey ash'; Hula *ka-kavu* 'dust'
WCP: Motu *kahu* 'dust'
NWCP: Lala *apu(lolo)*, Roro *apu(roro)*, E. Mekeo *(ae)apu* 'dust'; Roro *abu*, E. Mekeo *apu* 'fog'; E. Mekeo *apu-apu*, W. Mekeo *abu-abu*, Kuni *abu* 'cloud'

POC **patu* 'stone' (Dempwolff 1938)
PPT **vatu*
BM: Bwaidoka *vatu*
KL: Kilivila *vatu*, Misima *pat*, Nimoa *pak*

PCP **vatu*
SK: Maopa *vau*
WCP: Gabadi *vaku*

POC **ranum* 'fresh water' (Dempwolff 1938)
PPT **ranu*
KL: Budibud *danu* 'water'

PCP **lanu* 'water'
SK: Taboro *ranu*, Balawaia *nanu*, Hula *nanu*, Maopa *nalu*
WCP: Motu *ranu*

POC **waiR* 'water' (Dempwolff 1938)
PPT **wair*
AT: Wedau *waira*, Tawala *goila*
KAK: Dawawa *waira*
BM: Molima *goila*
DD: Duau *waila*
SUA: Sariba *goila*, Tubetube *waila*
KL: Misima *we-wel*, Nimoa *we-wel*

PCP *wai
- OM: Magori *voi* 'water, river'
- SK: Hula *wai* 'river'
- WCP: Motu *(sina)vai* 'river, water'; Gabadi *vei*
- NWCP: Lala *vei*, Doura *vei*, Roro *babei*, Roro *bei*, Kuni *vei*, E. Mekeo *fei*

POC *tanoq 'earth' (Dempwolff 1938)
PPT *tanoq
- BM: Anuki *tonwa*
- AT: Gapapaiwa *tano*
- DD: Dobu *tano*, Duau *tanoha*
- SUA: Daui *tano*, Sariba *tano*, Bohutu *tanohi*

PCP *tano
- SK: Balawaia *tano*, Taboro *tano*, Hula *ano(para)* 'world'
- WCP: Motu *tano*, Gabadi *kano(baga)*
- NWCP: Lala *kano(baka)*, Doura *kano*, Roro *hano*, Kuni *kano*, E. Mekeo *ano*, W. Mekeo *ano*

4.3.4 TERRESTRIAL ACTIVITIES AND TERRESTRIAL TECHNOLOGY

POC *pasoq 'plant (something)' (Ross 1988)
- NGO: Tuam *vosoɣ*
- VTZ: Sio *(si)pau*, Mbula *paza*
- Bel: Takia *pae*
- SCH: Kairiru *vyas*
- HG: Misim *vaðo*, Mapos *varoh*
- BV: Vitu *vaðoɣ(i)*
- WLZ: Bola *varo*
- NI: Nalik *fasu*
- SES: Gela *vah(i)*, Lau *fas(i)*, Arosi *has(i)*

PPT *vasoq
- AT: Gapapaiwa *vao* 'grow, plant (crops); garden'; Tawala *wago* 'plant by pushing into the ground; strike a cutting'
- KL: Sudest *vʷað(iði)* 'push seed into hole/plant; insert'; Misima *váluk* 'to plant'

PCP *varo
- SK: Balawaia *varo*, Maopa *varo-varo*, Hula *varo*
- WCP: Motu *hado*
- NWCP: Lala *va-vado*, Roro *bato*, Kuni *bado*, E. Mekeo *fau*

PMP *qa(l,R)ad 'fence, palisade'[40]
POC *qaRa(r)
- NCV: Raga *ara*, N. Efate *(na)ara* 'wall of bamboo or cane'

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40 This reconstruction is supported by Elkins' (1974) Manobo data and the Oceanic data listed here.

PN: Tongan *ʔaa* 'fence, wall, enclosure'; Samoan *aa(i)* 'fence in (something)'; E. Uvean *ʔaa* 'palisade'; E. Futunan *ʔaa* 'wall'

PPT **qara*

AT: Ubir *gara*, Are *gara*

PCP **ɣala*

SK: Hula *ala*
WCP: Motu *ara*, Gabadi *ara*
NWCP: Lala *ala*, Roro *ara*, Kuni *ala*

PPT **gana* 'fence'

KAK: Dawawa *gana*
DD: Dobu *g^{w}ag^{w}ana*
SUA: Sariba *gana*
KL: Misima *gana*, Sudest *gana*

PCP **gana*

OM: Magori *gana*, Ouma *gana*
SK: Balawaia *ɣana*, Hula *kana*

POC **quma* 'garden'(Dempwolff 1938)

PPT **quma*

SUA: Sariba *uma(i)*, Tubetube *kuma(i)*
KL: Nimoa *hume*, Sudest *uma*

PCP **ɣuma* 'garden'

WCP: Motu *uma*
NWCP: Roro *uma*, Kuni *(diaba)uma*, E. Mekeo *uma*, W. Mekeo *uma*

POC **(pb)agur* 'hoe' (Dempwolff 1938)

PPT **bagur* 'garden', **vaqur* 'plant (something)'

BM: Bwaidoka *bakula*, Kalokalo *bagula* 'garden'
DD: Dobu *bagula* 'garden'
KL: Kilivila *bagula*, Nimoa *baguya* 'garden'; Kilivila *vaula* 'plant (sweet potato +)'

PCP **v<in>ayula* 'do work'

SK: Hula *inayulu*, Maopa *ulavunu* (metathesis of ***(u,i)navulu)*
NWCP: Lala *vinaula*, Kuni *bilaula*, E. Mekeo *pinauna*

POC **kuron* 'cooking pot' (Dempwolff 1938)

PPT **kuron*

BM: Molima *ʔulena*
DD: Dobu *ʔulena*
KL: Misima *ulun*, Sudest *ɣuye*

PCP **ɣulo* 'cooking pot'

WCP: Motu *uro*
SK: Balawaia *ɣulo*, Hula *ɣulo*, Maopa *ulo*

PPT *naquq 'clay dish or pot'

GUM: Gumawana *no* 'clay pot'
AT: Ubir *nauk^{w}a(t)*, Gapapaiwa *nau*, Tawala *nau* 'cooking pot'
BM: Iduna *nau?a* 'wooden dish'
DD: Sewa Bay *(i)nawe* 'cooking pot'
KL: Sudest *noɣa* 'wooden dish'

PCP *naɣu 'clay dish'

SK: Hula *naɣu*
WCP: Motu *nau*
NWCP: Kuni *nau*

POC *b(w)ilo 'coconut shell used as liquid container or cup' (Ross, forthcoming)
PPT **b(w)ilo (no non-CP reflexes known)
PCP *bio

WCP: Motu *bio*

PMP *dapuR 'fireplace'
POC *rapu

ADM: Nyindrou *drahu (ɟih)*
FIJ: E. Fijian *(matā)dravu*

PPT *ravu

BM: Iduna *(va)lafu* 'cause to melt by heat of fire'
AT: Gapapaiwa *(si)ravu(nua)* 'extinguish'

PCP *ravu

WCP: Motu *rahu-rahu*

POC *qumu(n,R)* 'earth oven' (Lichtenberk, this volume *qumun)
PPT *qumu(n,r) 'earth oven', *qumur(i) 'bake in an earth oven'

AT: Are *kumra* 'bake'
BM: Diodio *umuna*, Iduna *kumula* 'earth oven'; Iduna *kumul(i)* 'bake (in oven)'; Yamalele *ŋumula* 'bake'
DD: Dobu *?umula*, Duau *kumuna* 'earth oven'; Dobu *?umul(i)*, Sewa Bay *umul(i)*, Duau *kumuna* 'bake'
KL: Kilivila *kumkula* 'earth oven'; Misima *(wi)umun* 'bake (in oven)'; Nimoa *humu*, Sudest *ɣume* 'bake'

PCP *ɣumu 'earth oven'

OM: Ouma *umu* 'black face paint'
SK: Hula *(ve)ɣumu* 'blacken face in stripes'
WCP: Motu *amu* 'earth oven'; Motu *guma* 'soot'
NWCP: Roro *ŋumu* 'charcoal'; Roro *umu*, W. Mekeo *umu*, Lala *uma-uma* 'black'; E. Mekeo *uma* 'bake (in oven), burn (grass)'; E. Mekeo *umu* 'black, charcoal'

PNGO **gabur* 'bake (on fire)'

Bel: Wab *gabu* '(fire) smoke'
HG: Vehes *gabur(iŋ)*, Mapos *gabul(eŋ)*, Patep *ŋbul(a)* 'boil'

PPT **gabur*

DD: Dobu *gabu* 'bake'
BM: Molima *gabu* 'bake, burn (grass)'; Yamalele *kabun(i)* 'bake'; Iduna *gabu* 'bake (on fire), burn grass'
AT: Meniafia *afun* '(fire) burn'; Ubir *gagab* 'flicker'; Are *kapun(i)*, Gapapaiwa *kapun(i)* 'bake'
SUA: Sariba *gabu*
KL: Kilivila *gabu* 'bake, burn (grass)'; Budibud *gabula* '(fire) burn'

PCP **gabu*

OM: Magori *gapu*, Bina *gabu* 'burn (grass)'
SK: Balawaia *ɣabu* 'bake (on fire), burn (grass)'; Maopa *kapu* 'burn (grass)'; Hula *kapu* 'bake (on fire)'; Hula *kapur(a)* 'burn (grass)'
NWCP: Lala *ŋabu* 'bake (in oven), burn (grass)'; Kuni *afu* 'bake (on fire)'

POC **tunu* 'bake (on fire), burn (grass)' (Dempwolff 1938; Lichtenberk, this volume)
PPT **tunu*

BM: Iduna *tun(a)* 'set fire to; burn off (grass)'
AT: Tawala *tunu(ya)* 'shine a light on, light up'
KL: Misima *tun* 'sting'

PCP **tunu* 'bake (on fire)'

WCP: Motu *tunu* 'bake (pottery on fire)'

POC **nasu* 'boil (something)' (Milke 1965; Blust 1981d)
PPT **nasu* (no non-CP reflexes found)
PCP **naru* 'bake (on fire), boil (something)'

SK: Maopa *naru*, Hula *nanu* 'boil (something)'
WCP: Motu *nadu* 'boil (something)'; Gabadi *nagu* 'bake (on fire)'
NWCP: Lala *nadu-nadu* 'cooking pot'; Doura *natu* 'bake (on fire)'; Kuni *nadue* 'boil (something)'; E. Mekeo *naku*, W. Mekeo *nagu* 'bake (on fire), boil (something)'

POC **qutup* 'submerge a vessel to fill it' (Milke 1968)

BV: Vitu *ɣituv(i)* 'fill (cup +)'
NI: Tabar *utuv(i)* 'fill (cup +)', Lihir *ut* 'fill (cup +)'
PN: Tongan *ʔutu* 'get or draw liquid'; Samoan *utu* 'draw water, fill with liquid'; Maori *utuh(ia)* 'fill (vessel) with water'

PPT **qutup*

BM: Iduna *ʔutuv(i)* 'dip, put, soak in water, (make) wet, submerge'
AT: Wedau *utuv(a)* 'flood'
KL: Misima *utú* 'push under sea and cause to take in salt water'

PCP *ɣutu 'draw water'
- OM: Ouma *uhu* 'draw water'
- SK: Balawaia *ɣutu* 'draw water, high tide'; Hula *ɣuu* 'draw water'
- WCP: Motu *utu* 'draw water, high tide'; Gabadi *uku(a)* 'high tide'
- NWCP: Lala *uku* 'high tide'

POC **pisiko* 'meat, flesh' (Milke 1968)
PPT **visiqo*
- BM: Iduna *vido*
- AT: Gapapaiwa *vio*

PCP **viriɣo*
- SK: Balawaia *virigo*, Taboro *virigo*, Hula *viroʔo*
- WCP: Motu *hidio*
- NWCP: Lala *vidiu* 'fat'; Roro *bisio*, Kuni *bidio*, E. Mekeo *pikio*

POC **kani* ('eat') + NOMINALISER 'staple food; food in general' (Ross, forthcoming)
PPT **qani-qani* 'staple food; food in general'
- KL: Misima *ánán* 'yams; root crops, nuts and fruit; food'

PCP *[ɣani-]ɣani
- SK: Taboro *ɣani* 'short cooking banana'; Hula *ani* 'banana'
- WCP: Motu *ani-ani* 'food'
- NWCP: Mekeo *ani-ani* 'food'

PPT **ribi* 'rubbish'
- DD: Dobu *libi*

PCP **libi*
- SK: Hula *ripi-ripi* 'fragments of food or rubbish'

POC **qapuR* 'lime' (Dempwolff 1938)
PPT **qavur*
- AT: Meniafia *ŋaura*
- SUA: Tubetube *kauli*
- KL: Nimoa *haui*

PCP **ɣavu* 'lime'
- SK: Balawaia *ɣaɣu*, Taboro *ɣau*, Maopa *ɣavu*, Hula *avu*
- WCP: Motu *ahu*
- NWCP: Lala *avu*, Kuni *abu*, E. Mekeo *apu*

Lime, made by burning coral, is chewed with areca nut.

POC **pusuR* 'bow' (Dempwolff 1938), 'hunting bow' (Blust 1972c)
PPT **vusur*
PCP **vuru*
- WCP: Gabadi *ugu* 'bow'
- NWCP: Kuni *budu* 'arrow'

PPT **pewa* 'bow'
- BM: Iduna *fewa*
- AT: Maisin *feeva*

PCP **pewa*
- OM: Yoba *peva*
- SK: Taboro *fewa*, Hula *pewa*
- WCP: Motu *peva*
- NWCP: Doura *peva*, Lala *peva*, Kuni *(i)feva*, E. Mekeo *ŋeva* 'shoot'

CP speakers did not traditionally use the bow and arrow, but knew it from their contacts with people of the Papuan Gulf (Nigel Oram, pers.comm.; Tom Dutton, pers.comm.).

POC **tibʷa(ŋ)* 'arrow, dart' (Osmond, forthcoming)
- NCV: Mota *tiɣpʷa* 'blunt arrow, bird arrow; to shoot (not in fighting)'; Mota *tiɣpʷaŋ* 'shoot and hit (something)'; Paamese *(a)tuvo* 'arrow'; Atchin *tsip* 'blunt arrow'; Nguna *(na)tipʷa* 'arrow, spine, needle'
- FIJ: E. Fijian *tiga* 'reed dart, used in game of *veitiqa*'

PPT **dib(ʷ)a(ŋ)*
- AT: Tawala *diba* 'small pretend spear'

PCP **diba* 'spear, arrow'
- SK: Taboro *diba* 'spear, fish spear'; Balawaia *diba*, Hula *ripa* 'arrow'
- WCP: Gabadi *diba*, Motu *diba* 'arrow'
- NWCP: Doura *tipa*, Lala *diba* 'arrow'

POC **qio(r,R)* 'spear'
- NGO: Kove *iðo*, Gitua *izoŋ*
- VTZ: Pono *yu* 'spear made from limbum or betelnut palms, traditionally used for pig hunting and fighting'
- SWNB: Avau *yo* 'shoot'
- MGN: Mamusi *yio*, Uvol *io* 'arrow'
- SCH: Manam *io* 'long lance, whose wooden spear point has prongs on four sides'
- HG: Kaiwa *ii* 'arrow'; Patep *yii*
- NI: Lamasong *iu* 'to shoot'; Konomala *iu* 'arrow; to shoot'
- SES: Lau *io* 'poisoned spear'
- NCV: Nguna *(na)io*

PPT **qio(r)*
- BM: Anuki *io*, Bwaidoka *ɣio*, Diodio *yio* 'arrow'; Kalokalo *gio* 'arrow, spear'
- AT: Ubir *jo*, Boianaki *io*, Tawala *iyola* 'fish spear'

PCP **ɣio*
- SK: Balawaia *gio*
- WCP: Motu *io*
- NWCP: Lala *io*, E. Mekeo *iso*

PPT **qudir* 'fish spear'
- BM: Kalokalo *kudila*, Iduna *hudila*

PCP *(ɣ)udi
WCP: Motu *udi*

POC *ma(d,j)a 'club' (Osmond, forthcoming)
NWS: Sengga *maza*, Lungga *maja*, Simbo *maja* 'headhunting axe, formerly club'
SES: Arosi *mada* 'club (generic)'; Bauro *mata*, Kahua *mata*
FIJ: E. Fijian *mādā* 'k.o. club used in war dances'
PPT *maja (no non-CP reflexes known)
PCP *mada
SK: Hula *mara* 'wooden club'

POC *(q,g)ap^{w}(e,i) 'k.o. club' (Osmond, forthcoming)
SES: Lau *afui* 'k.o. club'; Faghani *gafe* 'club'
PPT *(q,g)avi
AT: Gapapaiwa *gavi* 'make war; do battle'
PCP *gavi
WCP: Motu *gahi* 'flat, round stone club'

POC *panua 'land, territory, homeland' (Dempwolff 1938)
PPT *vanua 'village'
BM: Molima *vanue*
DD: Dobu *anua*
SUA: Sariba *yanua*
KL: Kilivila *valu*, Misima *panua*
PCP *vanua 'village'
SK: Balawaia *vanua*, Maopa *vanua*, Hula *vanuga*
WCP: Motu *hanua*, Gabadi *vanua*
NWCP: Lala *vanua*, Kuni *banua*, E. Mekeo *panua*

POC *salan 'path' (Dempwolff 1938)
PPT *salan (no non-CP reflexes found)
PCP *raya
OM: Ouma *raea*, Magori *rae*
SK: Maopa *(raða)ðara*
WCP: Motu *dala*
NWCP: Lala *dala*, Doura *tara*, Roro *taea(ra)*, Kuni *daya*, E. Mekeo *kea(na)*, W. Mekeo *gea(na)*

POC *qeba 'pandanus mat' (Ross, forthcoming)
PPT *qeba (no non-CP reflexes found)
PCP *qeba
PT: Sinagoro *ɣeba*

APPENDIX 1: ABBREVIATIONS OF LANGUAGE NAMES

ADM	Admiralty Islands
AT	Are/Taupota chain
BM	Bwaidoka/Molima network
BV	Bali-Vitu
CMP	Central Malayo-Polynesian
CP	Central Papuan
DD	Dobu/Duau chain
FIJ	Fijian
G/NWCP	Gabadi/Nuclear West Central Papuan
GUM	Gumawana language
HG	Huon Gulf (excluding the Markham languages)
KAK	Kakabai chain
KL	Kilivila/Louisiades network
MGN	Mengen
MIC	Nuclear Micronesian
MKM	Markham
MMN	Meso-Melanesian
NCL	New Caledonia
NCV	North/Central Vanuatu
NGO	Ngero
NI	New Ireland (excluding the North-West Solomonic subgroup thereof)
NMDX	North Mainland/D'Entrecasteaux network
NWCP	Nuclear West Central Papuan network
NWS	North-West Solomonic
OM	Ouma/Magori subfamily
PAN	Proto Austronesian
PCEMP	Proto Central-Eastern Malayo-Polynesian
PCP	Proto Central Papuan
PEOC	Proto Eastern Oceanic
PMP	Proto Malayo-Polynesian
PN	Polynesian
PNGO	Proto New Guinea Oceanic
PNP	Proto Nuclear Polynesian
PNWCP	Proto Nuclear West Central Papuan
POC	Proto Oceanic
PPN	Proto Polynesian
PPT	Proto Papuan Tip
PT	Papuan Tip
PWCP	Proto West Central Papuan
PWO	Proto Western Oceanic
RKM	Roro/Kuni/Mekeo network
SCH	Schouten
SES	South-East Solomonic
SK	Sinagoro/Keapara network
SUA	Suauic linkage
SWNB	South-West New Britain
VTZ	Vitiaz Strait languages not included under Bel, Schouten, South-West New Britain or Mengen
WCP	West Central Papuan network, where not included within North West Central Papuan
WLZ	Willaumez

APPENDIX 2: CONSONANT CORRESPONDENCES

(The key is at the end of the Appendix)

(a) CENTRAL PAPUAN FAMILY

POC	*p fortis	*p lenis	*b	*m	*p^{w}[1]	*b^{w}[1]	*m^{w}[1]	*t	*r, *R	*d, *dr, *j
PPT	*p	*v	*b	*m	*p^{w}	*b^{w}	*m^{w}	*t	*r	*d, *j
PCP	*p	*v	*b	*m	*p^{w}	*b^{w}	*m^{w}	*t	*l	*d
Bina	p	v; Ø/_u	b	m	.	.	m^{o}	t; s/_i	l	d
Yoba	p	v; Ø/_u	b	m	.	.	m^{o}	t; s/_i	r	d; d~s/_i
Magori	p	v; Ø/_u	b	m	.	.	m^{o}	t; s/_i	r	d; t~d/_i
Ouma	p	v; Ø/_u	b	m	.	.	.	t~h~ʔ; h~s/_i	r	d
Keapara (Aroma)	p	v; Ø/a_u	p	m	.	.	m	Ø~ʔ	l	r
Keapara (Hula)	p	v; Ø/a_u	p	m	.	.	m~m^{o}	Ø~ʔ~k	l	r
Sinagoro (Taboro)	f	v; ɣ~Ø/o, u	b	m	.	b^{o}	m^{o}	t; s/_i, e	r	d
Sinagoro (Balawaia)	p	v; ɣ~Ø/o, u	b	m	.	b^{o}	m^{o}	t; s/_i, e	l~r	d~r
Motu	p	h	b	m	p^{o}	b^{o}	m~m^{o}	t; s/_i, e	r	d
Gabadi	v	v; Ø/_o, u	b	m	.	.	m^{o}	k; s/i	r	g; d/i
Doura	p	h	b~p	m	.	.	.	k; s/_i	r	t
Lala	p	v	b	m	p	b^{o}	m~m^{o}	k; s/_i	l	t; d/_i
Roro	.	b; Ø/a_u	p	m	.	p~p^{o}	m~m^{o}	h; h, s/_i	r	k; s/_i
Kuni	f	b	f	m	p^{o}	.	m^{o}	k; s/_i	l	k; s/_i
N.W. Mekeo	.	v; v~p/_u	p	m	.	.	m	Ø–k–	n	k
West Mekeo	.	b; b~p/_u	p	m	.	.	m	Ø–k–	n	k; j/_i
North Mekeo	b	b; b~p/_u	p	m	.	.	m	Ø–k–	n	k; ts/_i
East Mekeo	p	p; p~f/_u	f	m	p^{o}	.	m	Ø–ʔ–	n	Ø–ʔ–; ts/_i

[1]POC *p^{w}, *b^{w} and *m^{w} sometimes lose their labialisation feature in PCP and are reflected as PCP *v, *b and *m respectively.

POC	*l/_i, u	*y; *l/_e, a, o	*Ø–		*n, *ñ	*s, *c
PPT	*l/_i, u	*y; *l/_e, a, o	*Ø–		*n, *ñ	*s
PCP	*Ø	*y	*Y–/*_a	*Ø/i_a	*n	*r
Bina	.	y	Ø–	–Ø–	n	?
Yoba	.	y	Ø–	–Ø–	n	?
Magori	Ø	y–e–	Ø–	–Ø–	n	k–r~k–
Ouma	Ø	Ø–e–	Ø–	–Ø–	n	r
Keapara (Aroma)	Ø	ð–r–	ð–	–Ø–	n	r
Keapara (Hula)	Ø	Ø–r–	Ø–	–Ø–	n	r
Sinagoro (Taboro)	Ø	y	y–	–Ø–	n	d~r
Sinagoro (Balawaia)	Ø	Ø–ɣ–	Ø–	–Ø–	n	r~d
Motu	Ø	l	l–	–Ø–	n	d
Gabadi	Ø	Ø–r–	Ø–	–Ø–	n	g; d/i
Doura	Ø	r	Ø–	–Ø–	n	t
Lala	Ø	l	Ø–	–Ø–	n	d
Roro	Ø	Ø–e–	Ø–	–Ø–	n	t; s/_i, u
Kuni	Ø	y	y–	–Ø–	n; Ø/i, r_a	d
N.W. Mekeo	Ø	Ø	Ø–	.	n	g
West Mekeo	Ø	Ø–l–	Ø–	–d–	n	g; j/_i
North Mekeo	Ø	.	Ø–	–z–	n	g; ts/_i
East Mekeo	Ø	l	l–	–s–[2]	n	k

[2]In East Mekeo also in the environment /i_o.

POC	*k fortis	*k, *q lenis	*g	*ŋ	.	.	*w
PPT	*k	*q	*g	*ŋ	*k^w	*g^w	*w
PCP	*k	*ɣ	*g	*ŋ	*k^w	*g^w	*w
Bina	k	ʔ~Ø	g	Ø; n/_i	.	Ø–	v~w
Yoba	k	ʔ~Ø	g	Ø; n/_i	.	.	v~w
Magori	ʔ~k~Ø–ʔ–	ʔ~g	g	Ø	.	g^o	v
Ouma	ʔ~k~Ø–	ʔ~g; Ø–	g	ʔ; n/_i	.	g^o	v~Ø
Keapara (Aroma)	Ø–ʔ–	Ø/_i, u; ɣ/_e, a, o	k	ɣ	w–	k^w	w
Keapara (Hula)	k~Ø	ɣ/_i, e, u; Ø/_a, o	k	ɣ	k^w–	k^w–	w
Sinagoro (Taboro)	k	ɣ	g	ɣ; Ø–	k^w–	g^w	v
Sinagoro (Balawaia)	k	ɣ	ɣ~g	ɣ	k^w	$ɣ^w$	w~v
Motu	k	Ø~ɣ	g	Ø~ɣ	k^w	g^w	v
Gabadi	ʔ~Ø	Ø~ʔ	ʔ~Ø	Ø~n	$Ø^o$–	$Ø^o$–$ʔ^o$–	v~u
Doura	ʔ~Ø	Ø	Ø~ʔ	Ø~n	.	$Ø^o$–	v
Lala	Ø	Ø	Ø	Ø~n	v–	$Ø^o$–Ø–	v
Roro	Ø–ʔ	Ø–ʔ	Ø~ʔ	Ø~n	Ø–	Ø–	w~b
Kuni	Ø	Ø	Ø	Ø	$Ø^o$–v–	–v–	v
N.W. Mekeo	Ø	Ø	Ø	n~Ø	$Ø^o$	$Ø^o$	$Ø^o$~w
West Mekeo	Ø	Ø	Ø	n~Ø	$Ø^o$	w	w
North Mekeo	Ø	Ø	Ø	n~Ø	$Ø^o$	$Ø^o$~w	w~v
East Mekeo	Ø–ʔ–	Ø–ʔ–	Ø	n~Ø	$Ø^o$–$ʔ^o$–	$Ø^o$–f–	v~f

(b) NUCLEAR PAPUAN TIP NETWORK

POC	*p fortis	*p lenis	*b	*m	*p^w	*b^w	*m^w
PPT	*p	*v	*b	*m	*p^w	*b^w	*m^w
Maisin	f	v-Ø; w/_u; Ø/o_	f(b)	m	f	b^o	m^o–w–
Arifama	f	b; Ø/_u	f	m	f	.	m^o
Meniafia	f	b; Ø/_u	f	m	.	.	m^o
Ubir	f	b; Ø/_u	f (b)	m	f^w	f^o	m^o
Are	p	b; Ø–/_u	p (b)	m	p^o	(b^o)	m^o
Gapapaiwa	p	v; Ø–/_u	p (b)	m	p^o	(b/^U)	m^o
Boianaki	p	v; Ø–/_u	p (b)	m	p^o~p	.	m^o
Minavega	p	v; Ø/_u; ɣ/_o	b–p–	m	p^w	.	m^w
Wedau	p	v; Ø/_u	p (b)	m	p^o	(b^o; b/^U)	m^o
Taupota	p	v; Ø/_u	p (b)	m	p^o	.	m^o
Garuwahi	p	v; g/_u	p (b)	m	.	(b^o)	m^o
Tawala	p	w; w/_u	p (b)	m	p^o	p^o (b^o; b/^U)	m^o
Bwaidoga	f	v; Ø, ɣ/_o, u	b	m	f^o	b^w	m^o
Iduna	f	v; Ø/_u; w/_o	b	m	f^w~f^o	b^o	m^o
Kalokalo	f	v; Ø/_u; g/_o	b	m	f^w~f^o	b^w~b^o	m^w
Yamalele	f	v; v~Ø/_u; g/_o	b	m	f^w	b^w~b^o	m^w~m^o
Gumawana	.	v; Ø/_u	b	m	p^o	b^w~b^o; b/^U	m^o
Dobu	p	Ø	b	m	p^w	b^w; b/^U	m^w
Duau	p	h; w/_o	b	m	p^w	b^w	m^w
Tubetube	p	Ø; w–/_o	b	m	p^w~p^o	b^w~b^o	m^w~m^o~m
Suau (Kwato)	p	h; w–/_o	b	m	p^o	b^o	m^o
Suau (Daui)	p	g; w–/_o; Ø/V_u	b	m	p^o	b^o	m^o
Wagawaga	p	f (w)	b	m	p^w	b^w~b^o	m^w

POC	*t	*r, *R	*d, *dr	*j	*l	*y	*n, *ñ	*ñ	*s, *c	
PPT	*t	*r	*d	*j	*l	*y	*n	*ñ	*s	*s
									fortis	lenis
Maisin	*t*	*r*	*t (d)*	*t*	*r*	*Ø–, –y–*	*n*	*n*	.	*s~Ø*
Arifama	*t; Ø/_i*	*r*	*t; Ø/_i*	t	*n*	*y*	*n*	*y*	*r*	*s~Ø*
Meniafia	*t; s~t/_i*	*r*	*t; h/_i (d)*	.	*n; Ø/_i*	*y*	*n*	*y*	.	*s~Ø*
Ubir	*t; s/_i*	*r*	*t; h/_i*	.	*n; n~Ø–_i*	*y*	*n*	*n*	*g*	*s~Ø*
Are	*t; s/_i*	*r*	*t; s/_i (d)*	t *(d)*	*n; Ø/_i*	*y*	*n*	*n*	*g*	*s~Ø*
Gapapaiwa	*t; s/_i*	*r*	*t; s/_i (d)*	.	*n; Ø/_i*	*y–y~l–*	*n*	.	*g*	*s~Ø*
Boianaki	*t; .*	*r*	*t; .*	*(d)*	*n; Ø/_i*	*y*	*n*	*n*	*ɣ*	*s~Ø*
Minavega	*t; Ø/_i*	*n*	*t; Ø/_i*	.	*n*	*y*	*n*	*n*^{i}	*g*	*Ø*
Wedau	*t; ɣ~Ø/_i*	*r*	*t; Ø/_i (d)*	*t (d)*	*n; Ø/_i*	*ð*	*n*	.	*ɣ*	*Ø*
Taupota	*t; h/_i*	*l*	*t; h/_i (d)*	.	*n; Ø/-i*	*ð*	*n*	.	*g*	*h~Ø*
Garuwahi	*t; .*	*l*	*t; .*	.	*n*	*y*	*n*	.	*ɣ*	*h~Ø*
Tawala	*t; h/_i*	*l*	*t; h/_i (d)*	*(d)*	*n*	*y*	*n*		*g*	*h~Ø*
Bwaidoga	*t; ɣ/_i; s/_e*	*l*	*d*	.	*n*	*y*	*n*	*n*^{i}	*ɣ*	*Ø (s)*
Iduna	*t; h/_i; s/_e*	*l*	*d*	*d*	*n*	*y*	*n*	*n*^{i}	*g~y*	*Ø (s)*
Kalokalo	*t; Ø/_i; .*	*l*	*d*	.	*n*	*y*	*n*	*l*^{i}	*g*	*Ø (s)*
Yamalele	*t; Ø/_i; s/_e*	*l*	*d*	*d*	*n*	*y*	*n*	.	*g~y*	*Ø (s)*
Gumawana	*t; s/_i*	*l (y)*	*d (s/_i)*	*d*	*n*	*y*	*n*	.	*Ø~y*	*Ø (s, l)*
Dobu	*t; s/_i*	*l*	*d*	*d*	*n; Ø/_i; l/_*#*	*y*	*n*	*n*^{i}	*s*	*s*
Duau	*t; s/_i*	*l*	*d*	*d*	*n; Ø–_i; l/_*#*	*y*	*n*	*n*^{i}	*s*	*s*
Tubetube	*t; t~s/_i*	*l*	*t~d–l–*	*–l–*	*l*	*y*	*n*	*n*^{i}	*s*	*s*
Suau (Kwato)	*t; s/_i*	*l*	*d*	*d*	*l*	*y*	*n; Ø/_i*	.	*s*	*s*
Suau (Daui)	*t*	*l*	*d*	*d*	*l*	*y*	*n*	.	*s*	*s*
Wagawaga	*t; (h/_i)*	*l*	*d*	.	*l (n)*	*y*	*n; Ø/_i*	.	*s (Ø)*	*s (Ø)*

POC	*k fortis	*k, *q lenis		*g	*ŋ			*w
PPT	*k	*q–	*–q–	*g	*ŋ	*k^w	*g^w	*w
Maisin	k–Ø–	Ø~k–	–Ø–	.	–Ø–	k–	.	v; –Ø
Arifama	k–	Ø–	–Ø–	Ø	–n–	k^o–	.	.
Meniafia	.	Ø–	–Ø–	Ø–ʔ–	–n–	.	.	.
Ubir	k–Ø–	Ø–	–Ø–	g–Ø–	–n–	k^w~k^o–	.	w; –u~b
Are	k	k–	–Ø–	k	–n–	k^w–	w~g^w–	w
Gapapaiwa	k	k–	–Ø–	k (g)	–n–	k^w–	.	w
Boianaki	k	k–	–Ø–	k	–n–	k^w–	.	w
Minavega	k–	Ø–	–Ø–	–Ø– (–g–)	–g–	w–; w/_ *#	.	w
Wedau	k–Ø–	Ø–	–Ø~ɣ–	–Ø– (g)	–ɣ–	k~$Ø^o$–u	.	w
Taupota	k–	Ø–	–Ø~g–	k (g)	–g–	$ʔ^o$~k^o–u	.	w
Garuwahi	.; –ʔ–	Ø–	–Ø–	–ʔ– (g)	.	$Ø^o$–	.	w
Tawala	k–Ø–	Ø–	–Ø~h–	–Ø– (g)	–g–	$Ø^o$~k^o–	g^w–	w
Bwaidoga	k	Ø~ʔ~k–	–ɣ~y–	g	–ɣ–	k^w–; w~k^w/_ *#	.	w
Iduna	k–ɣ–	Ø–ʔ~k–	–Ø~y–	g	–y–; Ø/_o	.; w/_ *#	g^w–	w
Kalokalo	–k–	k–	–Ø~ɣ~g–	g	–g–	k^w–; w/_ *#	g^w–	w
Yamalele	ʔ~k	Ø~ʔ~k–	–Ø~h~g–	k (g)	–g–	$ʔ^w$~w; w/_ *#	k^w~g^w–	w
Gumawana	Ø-	Ø~k–	–Ø–	g	-y~Ø-; Ø/_–i	k^w~k–; k^w/_*#	g-	w–w–u
Dobu	k~ʔ–ʔ–	ʔ~Ø~k–	–Ø-	g	–Ø–	k^w–; w/_ *#	g^w–	w; –u
Sewa Bay	k–Ø–	Ø~k–	.	g	–Ø–	k^w~w~k^o–; w/_ *#	g^w–	w
Duau	k–	k~ʔ–	–Ø~h–	g	–Ø–	k^w~k^o–; k/_ *#	g–	w
Tubetube	k	k–	–Ø–	g	–n–; Ø/_–i	$Ø^o$–	.	w
Suau (Kwato)	k–ʔ–	ʔ~Ø–	–h~Ø-	g	–n–; Ø/_–i	$Ø^o$~w–	g^o–	w
Suau (Daui)	k~ʔ–ʔ–	ʔ~Ø–	–Ø–	g	–n–	w–	g^w–	w
Wagawaga	–ʔ– (k–)	ʔ~Ø~k–	–h~Ø– (–g–)	g (–m)	(–g–)			

(c) KILIVILA/LOUISIADES NETWORK

POC	*p fortis	*p lenis	*b	*m	*p^w	*b^w	*m^w	*t	*r, *R	*d, *dr	*j
PPT	*p	*v	*b	*m	*p^w	*b^w	*m^w	*t	*r	*d	*j
Kilivila	*p*	*v*; *Ø/_u*; w–/_o; *–Ø*	*b*	*m*	*p^w~p^o*	*b^w~b^o*	*m^w*	*t*; *s/_i*	*y*; *–Ø (l)*	*d*; *s/_i*	*d~s*
Muyuw	*p*	*v*; *Ø/_u*; w–/_o, u	*b*	*m*	*pw*	*b^w~b^o*	*m^w*	*t*; *s/_i*	*y*; *–Ø (l)*	*d*; *s/_i*	*d*
Budibud	*p*	*v*; *Ø/_u*; w–/_o	*b*	*m*	*p^w*	*b^w*	*m^w*	*t*; *s/–i*	*y*; *–Ø (l)*	*d*; *s/–i*	.
Misima	*p*	*p*; *–Ø (v*; *Ø/u: w, Ø/_o)*	*b*	*m*	*p^w*	*b^w*	*m^w~m*	*t*; *t~s~(h)/_i*	*l*	*t~d–l–*	*–l–*
Nimoa	*p*	*p*; *–Ø (v*; *Ø/_o, u)*	*b*	*m*	*p*	*b^w~b^o*	*m^w~m^o*	*t*	*y*; *–Ø (l)*	*d*	*d*
Sudest	*b*	*v*; *Ø/_o, u*	*b*	*m*	.	*b^w*	*m^w*	*r*; t–	*y*; .	*d*	*j*

POC	*l	*y	*n, *ñ	*ñ	*s, *c		*k fortis	*k, *q lenis	*g	*ŋ	.	.	*w
PPT	*l	*y	*n	*ñ	*s fortis	*s lenis	*k	*q	*g	*ŋ	*k^w	*g^w	*w
Kilivila	*l*; *Ø/_i*	*y*	*n~l*	*n^i*	l	*s*	*k*	*k–Ø–Ø*	*g*	*–g–*	*k*	*g–*	*w*
Muyuw	*n*	*y*	*n*	.	*l*; *–n*	*s*	*k–*	*k–Ø–Ø*	*g*	*–g–*	*k^w–k*	*g–*	*w*
Budibud	*l*	*l*	*n~l*	.	*r*	*s*	.	*k~Ø–Ø–Ø*	*g*	*–g~n–*	*k^w–*; *k/_*#*	*g–*	*w*
Misima	*n*	*y*	*n*	*n^i*	*l*	*h*; *s/_i*; *–l*	*k*	*Ø~k–Ø–Ø*	*g*	*–n–*; *Ø/_*#*	*k^o~k~0-0-0*	*g–*	*w*; *–u*
Nimoa	*l*	*y*	*n*	.	*Ø*	*s–s–Ø*	*k~h–k–*	*h–Ø–Ø*	*g*	*–n–*; *Ø/_*#*	*w~k^o~$Ø^o$–*	.	*w*; *_o~u*
Sudest	*l*	.	.	*ñ*	*Ø*	*ð–ð–Ø*	.	*ɣ–Ø–Ø*	*g*	.	.	*g–*	*w*; *–u*

KEY

Orthographies are as in Ross (1988). The terms 'fortis' and 'lenis' are used as in Ross (1988)

x–x–x	refers to position in word (i.e. *initial–medial–final*)	*x~y*:	either *x* or *y*, with no known conditioning
x; *y/_a*	*y* in th environment */_a*, but *x* elsewhere	*/U*	in an unstressed syllable
s/i	both *s/_i* and s*/i_*	*/_a, b*	both */_a* and */_b*
x^o	*x* + rounding of the following vowel	*x^i*	*x* + raising of the following vowel
(x)	*x* is indirectly inherited (in the sense of Biggs 1965)		
x/_#*	*x* reflects a POC/PPT word-final consonant, but is followed by a paragogic vowel in the modern language		

APPENDIX 3: PCP *p, *k AND *k^w

(a) DIRECTLY INHERITED PCP ETYMA CONTAINING PCP *p

See also:
PPT *k^w*apir* 'skin', PCP *k^w*api* (section 3.2.2)
PWO **pa(r,R)a* 'frog', PCP **pala* (section 4.3.1)
PPT **pewa* 'bow', PCP **pewa* (section 4.3.4)

POC **piau* 'throw, fling'
- NCV: Lewo *viao(ni)* 'throw (spear)'
- PN: Hawaiian *hiu*, Maori *øiu* 'fling'; Marquesan *hiu* 'cast (for fish with a lure)'

PPT **piau*
- BM: Iduna *fia* 'shoot'; Bwaidoga *fia* 'throw'
- SUA: Bohutu *pei* 'throw'

PCP **piau*
- SK: Hula *pia* 'throw'; Balawaia *piu* 'throw, shoot'
- WCP: Gabadi *viu* 'throw'
- NWCP: Mekeo *piu* 'throw'

POC **poku* 'burst open, explode'
- VTZ: Mbula *pok* 'burst forth into the open; appear; come into view; break'
- Bel: Takia *-puk* 'erupt; break through; break with noise; burst open; crack'
- NI: Ramuaaina *puek* 'burst'
- ADM: Drehet *(hi)*p^w*ok* 'crack, split open'

PPT **po(q)u*
- SUA: Daui *pou*

PCP **pou*
- SK: Hula *pou*, Balawaia *pou* 'burst'
- WCP: Motu *pou* 'burst'
- NWCP: Lala *pou* 'burst'

PNGO **piri* 'shoot'
- VTZ: Mbula *piri*
- Bel: Megiar *fid* 'bow'

PPT **pir[i, u]*
- BM: Iduna *fidu* 'small spear for spearing small fish'

PCP **pidi*
- OM: Ouma *pisi*, Magori *biti*, Yoba *pidi*
- SK: Taboro *fidi*, Hula *piti* 'hunt'
- WCP: Motu *pidi*
- NWCP: Lala *pidi-pidi* 'hunt'; Doura *piti*, E. Mekeo *pitsi*, W. Mekeo *biji*

PPT *pape- 'wing'

AT: Ubir *fafe-*, Are *pepe-*, Minavega *pape-*, Wedau *pape-*, Tawala *apape-*
BM: Yamalele *fafe-*, Molima *pape-*
DD: Dobu *pape-*
SUA: Tubetube *pepe-*
KL: Misima *pepe-*

PCP **vape-*; borrowed Pre-OM form **papa-*

OM: Ouma *papa-*, Yoba *papa-*, Bina *papa-*
WCP: Motu *hape*
NWCP: Lala *ap-*

(b) DIRECTLY INHERITED PCP ETYMA CONTAINING PCP **k*

See also the following:
POC **kapato(n)* 'caterpillar, grub', PCP **kavato* (section 4.3.1)
POC **kobar* 'k.o. (large?) hermit crab', PCP **koba* (section 4.2.1)
POC **reke* 'pocket of seine net', PCP **leke* 'fishing net' (section 4.2.3)
PPT **karaŋudi* 'fishing spear', PCP **kara(ɣ)udi* (section 4.2.3)
POC **kaput* 'dust, grey ash', PCP **kavu(t)* (section 4.3.3)

POC **kanus* 'spittle', *(*kanus-i, kanisu*) 'spit' (Blust 1978a **qanus-i*)

SCH: Kairiru *qanswo* '(someone) spit'
NI: W.Kara *kanus*
ADM: Mussau *kanusu*
FIJ: E. Fijian *kānusi* 'spit'
PN: Tongan *ʔa-ʔanu* 'spit'

PPT **kanus*, *(*kanisu, kanusi*)

AT: Gapapaiwa *kanu*
SUA: Sariba *kaniso*

PCP **kanur(u,i)* 'spittle'

SK: Balawaia *kanunu* (expected form ***kanuru*)
WCP: Motu *kanudi*, Ganadi *ainugu*
NWCP: Lala *ʔanodi*, Roro *atosi*, Kuni *anodi*

PAN **korik* 'scrape' (Dempwolff 1938; Blust 1972c)
POC **kori* 'scrape (coconut)'

SCH: Manam *kori-kori*, Kairiru *quor*
HG: Numbami *ko-koli* '(coconut) scraper'
SWNB: Amara *kor-kor* 'scrape (taro)'
NI: Nalik *kur*, Notsi *kul*, Tabar *kori-kori*
NWS: Mono *oli*
SES: Lau *kori*
FIJ: E. Fijian *(ta)kori* 'scrape, shave'

PPT *[kori, k^wari]*

DD: Dobu *k^wali* 'scratch'
KL: Kilivila *k^wali* 'scratch', Misima *kol* 'scratch', Nimoa *kori* 'scratch'

PCP *ɣoli 'scratch, scrape'

OM: Ouma *kori* 'scratch' (probably borrowed: *k-*)
WCP: Motu *ori*, Gabadi *ori* 'scratch'
NWCP: Lala *oli-oli* 'coconut scraper', Roro *ori*

POC *kau-bebe(q)* 'butterfly'

BV: Vitu *kabebe*, Bali *kabeke*
ADM: Mussau *kaubebe*

PPT *kau-bebe(q)* (the form reflected in non-CP languages is PPT *kara-bembem*)
PCP *kaubebe*

SK: Balawaia *kaubebe*
WCP: Motu *kaubebe*

POC *[k,g]init* 'pinch with fingernails' (Milke 1968)

VTZ: Tami *ŋginit* 'pluck'
SCH: Manam *kiŋt(a)*
NI: Tolai *kinit* 'pick out with fingernails'
ADM: Mussau *kinit(i)*
SES: Gela *ɣini*, Lau *ʔini*, Lau *gini* 'pinch off'
NCV: Efate *kinit(ia)* 'nip with fingers'
FIJ: Fijian *kini* 'pinch with the nails'
PN: Tongan *kini* 'make an incision so as to let blood'

PPT *(k,g)ini(t)*

GUM: Gumawana *ginis(i)*

PCP *kini

SK: Hula *kini*, Balawaia *kini*
WCP: Motu *kini*
NWCP: Roro *ʔini*

POC *jika(p)* 'bad, rotten'

SCH: Wogeo *jika*, Kairiru *jieq* '(wood) rotten'
SES: Bughotu *dika*, Gela *dika* 'bad'
FIJ: E. Fijian *ðika(a)*, *ðikav(a)* 'weaken, wound'

PCP *dika 'bad'

WCP: Motu *dika*
NWCP: Doura *tiʔa*, Roro *kia*

POC *saqat 'bad' (Dempwolff 1938)

BV: Bali *zaɣata*
NI: Tiang *sat*, Notsi *caka*

PPT *saqat (no non-CP reflexes known)
PCP *raka
SK: Hula *raka(va)*, Balawaia *raka(va)*
WCP: Gabadi *ga-ga?a*

PWO *kuku 'defecate, excrete'
BV: Vitu *koko*
WLZ: Bulu *koko*
NWS: Kia *kuku*

PPT *kuku (no non-CP cognates found)
PCP *kuku 'defaecate'
SK: Hula *kuku*, Balawaia *kuku*
WCP: Motu *kuku*

PWO *kaka 'older sibling, same sex'
Bel: Biliau *kak*, Mindiri *kak* 'older sibling, same sex'
HG: Yabem *kaka-* 'older sibling, same sex (term of address)'
BV: Vitu *kaka-* 'person'
WLZ: Bulu *kaka(tara)* 'person'
NWS: Vangunu *kaka-*, Sengga *kaka-* 'older brother'; Kia *kaka* 'grandparent; older brother'
SES: Bauro *kaka-* 'grandparent'

PPT *kaka- (no non-CP reflexes known)
PCP *kaka-
SK: Hula *a-* 'friend'
WCP: Balawaia *kaka-* 'older sibling, same sex'
NWCP: Doura *a?a-*, Lala *a?a-*, Kuni *a-* 'older brother'; Roro *a?a-*, E. Mekeo *aa-* 'older sibling, same sex'

PWO *(ka-wiRi, ka-waRi) 'left-hand'
NI: Notsi *kayal*, Tabar *keari*

PPT *(kauri, ka-wiri) (no non-CP reflexes known)
PCP *kauli
SK: Hula *kauli*, Balawaia *kauli*
WCP: Motu *kauri*

PNGO *beku 'fall (e.g. from tree)'
HG: Bukawa *pɛŋ*, Kela *(ge)^{m}be*, Numbami *peka*, Kaiwa *bek*, Misim *(he)vʸak*

PPT *beku
BM: Iduna *be?u*
DD: Dobu *be?u*
AT: Gapapaiwa *peku*, Wedau *peu*
KAK: Dawawa *beku*

SUA: Sariba *beʔu*
KL: Misima *beku*

PCP **beku*
OM: Magori *biu*
NWCP: Roro *peʔu*, E. Mekeo *feu*

PPT **kawa* 'go mad'
AT: Maisin *kava-kava*

PCP **kawa*
OM: Ouma *ʔava*
SK: Hula *kawa* 'mad'
WCP: Motu *kava* 'mad'

PPT **kubʷa* 'short'
BM: Molima *ku-kubo-*
DD: Dobu *ku-kupa-*
SUA: Tubetube *ubʷa-kubʷa-*
KL: Kilivila *ku-kupi-*, Misima *kaúbʷa*, Nimoa *hubo-hubo-*, Sudest *uᵐbo* 'be too short'

PCP **kuba*
OM: Magori *ʔobo-ʔobo*
SK: Hula *kupa*, Balawaia *kuba*
NWCP: W. Mekeo *ku-kupa*

(c) PCP COGNATE SETS CONTAINING PUTATIVE PCP **kʷ*

(See also PPT **kwapir* 'skin', PCP **kʷapi*, listed in section 3.2.2.)

POC **kawak* 'dog'
NI: Lavongai *kauek*
BV: Bali *kauaka*
WLZ: Harua *kaua*
NGO: Kove *kawa*
SES: Gela *kau*, Bauro *au*

PPT **kʷa[i]wak*
SUA: Bohutu *waiowa*
KL: Kilivila *kaukʷa*, Nimoa *hewo*

PCP (?) **kʷa[i]wa*
OM: Bina *koivo*
SK: Balawaia *kʷaɣa-lu*, Taboro *kʷaiva*, Hula *kʷaea*

PWCP **(k)ʷaweta*
WCP: Gabadi *oveka*
NWCP: Roro *waeha*, Kuni *obeka*, Lala *oveka*, E. Mekeo *amuʔe*, W. Mekeo *auke*

PPT *k^w*ai-(k)wa* 'k.o. clay pot'

AT: Are *(nau)k^waik^{w}a* 'cooking pot'
KL: Kilivila *(-)k^wai(-)* 'clay pot; pot-like'

PCP (?) *k(w)ai(γ)wa*

SK: Hula *k^wagu* 'clay, waterpot'
WCP: Motu *kaeva* 'pot with rim'

PPT *k^wadi* 'k.o. flying insect (?)'

AT: Tawala *k^wadi(yoyo)* 'spider'
KL: Sudest *kade* 'k.o. flying insect'

PCP (?) *k^wadi*

WCP: Motu *k^wadi* 'grasshopper'

PPT *k^wano* (meaning uncertain)

DD: Duau *k^wano* 'swamp'
AT: Tawala *k^wano* 'dirt'

PCP (?) *k^wano*

SK: Hula *k^wano* 'earth, sand'
NWCP: Roro *ano* 'sand'

POC *kuku* 'fingernail' (Dempwolff 1938)
PPT *kuku-*

KL: Kilivila *kuk^{w}a-* 'claw'

PCP (?) *k^waku*

SK: Hula *k^waʔu* 'heel'
WCP: Motu *k^waku* 'claw'
NWCP: Lala *vaʔu* 'claw'

Ross, M.D. "Central Papuan culture history: some lexical evidence". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*.
C-127:389-480. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.389*

OCEANIC PLANT NAMES

DARRELL TRYON

1. INTRODUCTION[1]

Hancock and Henderson's *Flora of the Solomon Islands* (1988) lists several thousand taxa reflecting the rich and varied flora of the Melanesian region. Similar compendia exist for Papua New Guinea, Vanuatu, Fiji and Polynesia, although less exhaustive than that recently produced for the Solomons Islands area. While botanically significant progress has been made with plant identification, unfortunately linguistic research still lags behind in this domain, in spite of the very considerable lexical reconstruction projects undertaken over a lengthy period, by Blust, Geraghty, Ross and Biggs in particular, for the area covered by the Oceanic subgroup of Austronesian. One of the greatest problems in this regard is that only the most important botanical items have until now been recorded as part of field research. It seems that a practical resolution of the problem calls for collaborative studies by botanists and linguists, as ethnobotanists are a very rare species themselves.

In this paper I have chosen some sixty flora terms reflecting flora for which higher level lexical reconstructions exist within the Oceanic subgroup. The flora in question also exist in island Southeast Asia, and so might be expected in most cases to yield reconstructions for higher level extra-Oceanic subgroups, Proto Austronesian or at least Proto Malayo-Polynesian.

For each flora term, the scientific name is given first, and the list ordered alphabetically on this basis. Where possible, popular or common names are also given for trees, plants, etc., together with an indication of the principal use to which each taxon is put. The point of this is twofold: firstly to indicate the broad cultural relevance of the flora discussed, and secondly to give further clues to the linguistic identification of some of the lesser known items in areas where they are not well known from the literature.

Each item also includes lexical reconstructions, ordered broadly from highest to lowest, each followed by the source for each form, together with the definition listed in that source. (Chowning's (1963) PMN, Proto Melanesian, is not today recognised as a genetic subgroup, although it was presumably intended to cover the same languages as the Oceanic subgroup.) A range of reflexes from a broad spectrum of Oceanic languages is given where available, targetting especially those items for which no higher level Oceanic reconstruction exists at present, in the hope of stimulating research to fill the gaps.

Questions of continuity versus innovation and change, problems of multiple reconstructions for a single item, and the geographical distribution of reflexes are raised at

[1] I would like to thank Meredith Osmond for her assistance in researching plant names in the Melanesian region.

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Pacific Linguistics, C-127, 1994.

the end of the paper, as are some of the cultural details of the life of the early Oceanic Austronesians, especially in terms of diet.

ABBREVIATIONS

PAN	Proto Austronesian	PNS	Proto North-West Solomonic
PBV	Proto Bali-Vitu	PNV	Proto Northern Vanuatu
PCN	Proto Central/South New Ireland	POC	Proto Oceanic
PCP	Proto Central Pacific	PPC	Proto Central Papuan
PEMP	Proto Eastern Malayo-Polynesian	PPN	Proto Polynesian
PEO	Proto Eastern Oceanic	PPT	Proto Papuan Tip
PLN	Proto Lavongai-Nalik	PSS	Proto South-East Solomonic
PMC	Proto Micronesian	PSV	Proto Southern Vanuatu
PMK	Proto Markham	PWP	Proto Nuclear-West-Central Papuan
PML	Proto Malaitan		
PMN	Proto Melanesian	PWZ	Proto Willaumez
PMP	Proto Malayo-Polynesian	PWMP	Proto Western Malayo-Polynesian
PNCV	Proto North-Central Vanuatu	UIN	Ur Indonesisch

ADZ	Adzera	Papua New Guinea	French-Wright (1983)
ARE	'Are'are	Solomon Islands	Geertz (1970)
ARO	Arosi	Solomon Islands	Fox (1978)
ATC	Atchin	Vanuatu	Clark (1986)
AUA	Aua	Papua New Guinea	French-Wright (1983)
BAN	Banoni	Papua New Guinea	Lincoln (n.d.a)
BGO	Bughotu	Solomon Islands	Ross (n.d.)
BIR	Birao	Solomon Islands	Ross (n.d.)
BLI	Bali	Papua New Guinea	Ross (n.d.)
BLN	Baluan	Papua New Guinea	French-Wright (1983)
BOL	Bola	Papua New Guinea	Ross (n.d.)
BRO	Bauro	Solomon Islands	Ross (n.d.)
BWA	Bwaidoga	Papua New Guinea	French-Wright (1983)
DBU	Dobu	Papua New Guinea	Ross (n.d.)
DOU	Doura	Papua New Guinea	Ross (n.d.)
FIJ(E)	East Fijian	Fiji	Capell (1941)
FIJ(W)	West Fijian	Fiji	Pawley & Sayaba (forthcoming)
EFU	East Futunan	East Futuna	Biggs (n.d.)
EUV	East Uvean	Wallis	Biggs (n.d.)
FGN	Fagani	Solomon Islands	Ross (n.d.)
GED	Gedaged	Papua New Guinea	Mager (1952)
GEL	Nggela	Solomon Islands	Fox (1955)
GIT	Gitua	Papua New Guinea	Lincoln (n.d.a)
HAW	Hawaiian	Hawaii	Pukui & Elbert (1957)
KAH	Kahua	Solomon Islands	Ross (n.d.)
KAI	Kairiru	Papua New Guinea	Ross (n.d.)
KIA	Kia	Solomon Islands	Ross (n.d.)
KLA	Kilivila	Papua New Guinea	Senft (1986)
KOV	Kove	Papua New Guinea	Ross (n.d.)
KWA	Kwara'ae	Solomon Islands	Hancock & Henderson (1988)

KWO	Kwaio	Solomon Islands	Keesing (1975)
LAU	Lau	Solomon Islands	Fox (1974)
LAV	Lavongai	Papua New Guinea	Ross (n.d.)
LEW	Lewo	Vanuatu	Early (n.d.)
LKU	Lenkau	Papua New Guinea	Blust (1983-84a)
LNW	Lonwolwol	Vanuatu	Paton (1973)
LOH	Loh	Vanuatu	French-Wright (1983)
LON	Loniu	Papua New Guinea	Ross (n.d.)
LOU	Lou	Papua New Guinea	Ross (n.d.)
MAN	Manam	Papua New Guinea	Ross (n.d.)
MAO	Maori	New Zealand	Cashmore (1969)
MAR	Maringe	Solomon Islands	White (1988)
MDR	Mindiri	Papua New Guinea	Ross (n.d.)
MLI	Malai	Papua New Guinea	Ross (n.d.)
MLL	Malalamai	Papua New Guinea	Lincoln (n.d.a)
MLM	Molima	Papua New Guinea	Ross (n.d.)
MLS	Malasanga	Papua New Guinea	Ross (n.d.)
MON	Mono-Alu	Solomon Islands	Ross (n.d.)
MTA	Mota	Vanuatu	Codrington & Palmer (1896)
MTU	Motu	Papua New Guinea	Lister-Turner & Clark (c. 1954)
MUS	Mussau	Papua New Guinea	Ross (n.d.)
MUY	Muyuw	Papua New Guinea	Ross (n.d.)
NAK	Nakanai	Papua New Guinea	Chowning (n.d.a)
NAL	Nalik	Papua New Guinea	Ross (n.d.)
NAU	Nauna	Admiralty Islands	Ross (n.d.)
NBM	Numbami	Papua New Guinea	Ross (n.d.)
NGU	Ngunese	Vanuatu	Clark (1986)
NMK	Namakura	Vanuatu	Clark (1986)
PAA	Paama	Vanuatu	Crowley (1992)
PET	Petats	Papua New Guinea	Ross (n.d.)
PON	Ponapean	Pohnpei	French-Wright (1983)
RAG	Raga	Vanuatu	Clark (1986)
REN	Rennellese	Solomon Islands	Tryon & Hackman (1983)
ROR	Roro	Papua New Guinea	Ross (n.d.)
ROV	Roviana	Solomon Islands	Waterhouse (1949)
ROT	Rotuman	Rotuma	Churchward (1940)
SAM	Samoan	Samoa	Milner (1966)
SBO	Simbo	Solomon Islands	French-Wright (1983)
SEA	S.E. Ambrym	Vanuatu	Parker (1970)
SIO	Sio	Papua New Guinea	Lincoln (n.d.a)
SML	South Malaitan	Solomon Islands	Ross (n.d.)
TAH	Tahitian	French Polynesia	Lemaître (1973)
TAK	Takia	Papua New Guinea	Ross (n.d.)
TAL	Talise	Solomon Islands	Tryon & Hackman (1983)
TAW	Tawala	Papua New Guinea	Ross (n.d.)
TGO	Tangoa	Vanuatu	Clark (1986)
TMI	Tami	Papua New Guinea	Ross (n.d.)
TOL	Tolai	Papua New Guinea	Lanyon-Orgill (1960)

TOM	Tomoip	Papua New Guinea	Ross (n.d.)
TON	Tongan	Tonga	Churchward (1959)
TUB	Tubetube	Papua New Guinea	Ross (n.d.)
WED	Wedau	Papua New Guinea	Ross (n.d.)
XAR	Xaracii	New Caledonia	Grace (1975)
YAB	Yabem	Papua New Guinea	French-Wright (1983)
YLU	Yalu	Papua New Guinea	Ross (n.d.)

COMPARATIVE TABLE OF SYMBOLS USED IN AUSTRONESIAN RECONSTRUCTIONS

Dempwolff	UIN	*p*	*b*		*mp*	*mb*				*t*	*ṭ*	*nt*	*nd*
Dyen	PAN	*p*	*b*		*mp*	*mb*			*c*	*t*	*T*	*nt*	*nd*
Wolff	PAN	*p*	*b*		*mp*	*mb*			*t*	*t*	-	*nt*	-
Blust	PEMP	*p*	*b*			*mb*			*t*			*nt*	*nd*
Grace	POC	*p*			*mp*		*ŋp*		*t*			*nt*	*nd*
Ross	POC	*p*		*p*	*b*		*bw*		*t*			*d*	*dr*
Geraghty	PEO	*v*		*p*	*b*		*pw*	*bw*	*t*			*nt*	*nr*
Geraghty	PSS	*v*		*p*	*b*		*pw*	*bw*	*t*			*d*	
Levy	PML	*f*			*b*				*ø*			*d*	
Geraghty	PPN	*f*		*p*					*t*				*l-, -r*

Dempwolff	UIN	*ṇḍ*	*d*	*ḍ*	*ḷ*	*t'*	*k'*	*d'*	*g'*	*n't'*	*n'k'*	*n'g'*	*n'd'*
Dyen	PAN	*nD*	*d*	*D*	*r*	*s*	*c*	*z, Z*	*j*	*ns*	*ñc*	*ñj*	*nz/nZ*
Wolff	PAN	*nd*	-	*d*	-	*s*	-	*-, j*	*g*				*-/ñj*
Blust	PEMP	*nd*		*d*		*s*		*z*	*j, -s-*				
Grace	POC	*nd*		*d*		*(n)s*			*j*		*(n)s*		**nj*
Ross	POC	*dr*		*r*		*s*			*c*	*j*			*j*
Geraghty	PEO	*nr*		*r*		*z*			*j*	*s*			*nj*
Geraghty	PSS	*d*		*r*		*c*				*s*			*d*
Levy	PML	*d*		*r*		*s, t*							
Geraghty	PPN	*l-, r*				*s-, -h*				*s*			*t, s*

Dempwolff	UIN	*k*	*g*	*ŋk*	*ŋg*	*m*		*n*	*ṅ*	*ŋ*	*l*	*g*	
Dyen	PAN	*k*	*g*	*ŋk*	*ŋg*	*m*		*n*	*ñ*	*ñ*	*l*	*R*	*S*
Wolff	PAN	*k*	-	*ŋk*	-	*m*		*n*	*ñ*	*ng*	*l*	*gh*	*S*
Blust	PEMP	*k*		*ŋk*		*m*		*n*	*ñ*	*ŋ*	*l*	*R*	*Ø*
Grace	POC	*k*		*ŋk*		*m*	*ŋm*	*n*	*ñ*	*ŋ*	*l*	*R*	*Ø*
Ross	POC	*k*		*g*		*m*	*mw*	*n*	*ñ*	*ŋ*	*l*	*R*	*Ø*
Geraghty	PEO	*k*		*gk*		*m*	*mw*	*n*	*ñ*	*g*	*l*	*R*	*Ø*
Geraghty	PSS	*x, k*		*g*		*m*	*mw*	*n*	*ñ*	*ŋ*	*l*		*Ø*
Levy	PML			*k, g*		*m*	*ŋw*	*n*		*ŋ*	*l*		*Ø*
Geraghty	PPN	*k*				*m*	*ŋ*	*n*		*ŋ*	*l*	*Ø*	*Ø*

Dempwolff	UIN	*w*	*j*	*h*	*'*	*a*	*·*	*av*	*i*	*uj*	*aj*	*ej*	*u*	*iv*
Dyen	PAN	*w*	*y*	*q*	*h*	*a*	*e*	*aw*	*i*	*uy*	*ay*	*ey*	*u*	*iw*
Wolff	PAN	*w*	*y*	*q*	-	*a*	*ə, o*	*-e#*	*i, ə*	*-i#*			*u*	
Blust	PEMP	*w*	*y*	*q*	*Ø*	*a*	*o*		*i*		*e*		*u*	
Grace	POC	*w*	*y*	*q*	*Ø*	*a*	*o*		*i*		*e*		*u*	
Ross	POC	*w*	*y*	*q*	*Ø*	*a*	*o*		*i*		*e*		*u*	
Geraghty	PEO	*w*	*y*	*q*	*Ø*	*a*	*o*		*i*		*e*		*u*	
Geraghty	PSS	*w*	*Ø*	*Ø*	*Ø*	*a*	*o*		*i*		*e*		*u*	
Levy	PML	*kw*	*d*	*Ø, ?*	*Ø*	*a*	*o*		*i*		*e*		*u*	
Geraghty	PPN	*w*	*Ø*	*?*	*Ø*	*a*	*o*		*i*		*e*		*u*	

2. OCEANIC PLANT NAMES

1. *Acacia spirobis* (Wattle, Barrel Tree)

PNCV	**mariu*	Clark (1986)	*A. spirobis*
RAG	*mariu*		*A. spirobis*
PAA	*mali*		*A. spirobis*
LEW	*pur-maliu*		*A. spirobis*

2. *Adenanthera pavonina* (Bead Tree: wood for house posts, red seeds for necklaces; bark used in leprosy treatment.)

PNCV	**bisa*	Clark (1986)	*A. pavonina*
RAG	*bisa*		*A. pavonina*
PAA	*vise*		*A. pavonina*
TGO	*vipisu*		*A. pavonina*

3. *Alocasia macrorrhiza* (Elephant-ear Taro: food staple; stem sap used for treating cuts)

PAN	**biRa*	Blust (1972c)[2]	name of a plant
PAN	**biRaq*	Pawley & Green (1973)	taro sp.
PAN	**bighaq*	Wolff (this volume)	*Alocasia* spp.
POC	**piRa*	Blust (1972c)	large arum sp.
POC	**mpiRa*	Blust (1972c)	tuberous plant
POC	**piRaq*	Blust (1972c)	elephant-ear taro
PEO	**viRa*	Geraghty (1990)	swamp taro
PMC	**fi (ln)e*	Geraghty (1990)	swamp taro
PMN	**vila*	Chowning (1963)	elephant-ear taro
PSS	**vila*	Geraghty (1990)	swamp taro
PNCV	**via*	Clark (1986)	swamp taro
PCP	**via*	Geraghty (1990)	swamp taro
MTU	*hira*		large sp. of edible arum
SBO	*via*		horse taro, *Colocasia* sp.
ARO	*hira*		giant *Caladium*

[2] Note that for Blust a PAN reconstruction requires at least one Formosan and one non-Formosan witness. Wolff's PAN reconstructions, however, often have no Formosan witness, as he considers that Formosa (Taiwan) was a colonised area.

LEW	*kopia*		water taro
FIJ(E)	*via*		giant arum
SAM	*pia*		arrowroot

4. *Antiaris toxicaria*

PMP	**laji*	Blust (1986)	tree with poisonous sap: *A. toxicaria*?
POC	**lasi*	Ross (pers.comm.)	*A. toxicaria*
PNCV*	*(wa)lasi*	Clark (1986)	tree sp., *Semicarpus vitiensis*
RAG	*walahi*		*S. vitiensis*
SML	*lasi*		tree with juice causing sores
MTA	*las*		a tree

5. *Areca catechu* (Betel palm/nut: mild narcotic; used also to treat conjunctivitis, diarrhoea)

PAN	**bu (q)a*	Pawley & Green (1973)	areca
PAN	**buwaq*	Wolff (this volume)	betel nut
POC	**mpuaq*	Blust (1972c)	betel palm
POC	**mpuak*	Lynch (1978c)	betel palm
POC	**mpua (q)*	French-Wright (1983)	betel palm
POC	**buaq*	Ross (1988)	areca palm
PMN	**bua*	Chowning (1963)	areca nut
PNS	**buaq (a)*	Ross (1985)	areca nut
KLA	*buva*		betel nut/palm
TMI	*mbu*		areca nut
YAB	*buq*		areca
NAK	*bua*		areca nut/palm
GEL	*bua*		betel palm, nut
TAL	*bua*		areca nut

6. *Artocarpus* spp. (Breadfruit)

PAN	**kamaŋ (cs)i*	Blust (1970)	breadfruit
PAN	**kama (ŋ)ci*	Blust (1971)	breadfruit sp.
PAN	**kama (n)si*	Pawley & Green (1973)	fermented breadfruit
POC	**masi*	Blust (1970)	fermented breadfruit
PEO	**maRi*	Geraghty (1990)	breadfruit
PMC	**mai*	Geraghty (1990)	breadfruit
PSV	**ma (rR)i*	Lynch (1978c)	breadfruit
PPN	**mei*	Biggs (n.d.)	breadfruit
TON	*mei*		breadfruit
EFU	*mei*		breadfruit
REN	*mei*		breadfruit
POC	**mada*	Clark (1986)	fermented breadfruit
PNCV	**mara*	Clark (1986)	fermented breadfruit
PAN	**kulu[rR]*	Dyen & McFarland (1970)	breadfruit
POC	**kuluR*	French-Wright (1983)	breadfruit
PMN	**kulu*	Chowning (1963)	breadfruit
PPT	**qunur*	Ross (n.d.)	breadfruit
DBU	*?unu*		breadfruit

WED	*kunori*		breadfruit
MTU	*unu*		breadfruit
SIO	*kunu*		breadfruit
GED	*ul*		breadfruit
ROT	*ʔulu*		breadfruit
FIJ(W)	*kulu*		breadfruit
POC	**mpaReko*	French-Wright (1983)	breadfruit
POC	**baReko*	Ross (pers.comm.)	breadfruit
PMN	**barego*	Chowning (1963)	breadfruit
PWP	**baleɣo*	Ross (1985)	sago palm
PNS	**bareqo*	Ross (1985)	breadfruit
PSS	**baalexo*	Levy (1980)	breadfruit
PNV	**baeko*	Clark (1986)	breadfruit
GEL	*baleɣo*		breadfruit
BIR	*baleho*		breadfruit
FGN	*pareɣo*		breadfruit
MTA	*peɣo*		breadfruit
PNCV	**batavu*	Clark (1986)	breadfruit
MTA	*patau*		breadfruit
LNW	*beta*		breadfruit
PAA	*veta*		breadfruit

7. *Bambusa* sp. (Bamboo)

PAN	**qau (rR)*	Blust (1972c)	bamboo
POC	**kaundu*	Blust (1972c)	bamboo sp.
POC	**qauR*	Clark (1986)	bamboo sp.
POC	**kauR*	Ross (n.d.)	bamboo
PMN	**kau*	Chowning (1963)	bamboo
PBV	**kaur*	Ross (1985)	bamboo
PNS	**kavur*	Ross (1985)	bamboo
PNCV	**ʔau*	Clark (1986)	bamboo sp.
GED	*auz*		bamboo
NAK	*kauru*		bamboo
BGO	*ɣau*		bamboo
ARO	*ʔau*		bamboo
MTA	*au*		bamboo
SEA	*eou*		bamboo
PAN	**qeliŋ*	Blust (1980a)	bamboo sp.
PMP	**periŋ*	Blust (1980a)	bamboo sp.
PON	*pehri*	Blust (1980a)	*B. vulgaris*
PAN	**bituŋ*	Blust (1983-84a)	bamboo sp.
PAN	**pituŋ*	Blust (1983-84a)	bamboo sp.
PMP	**patuŋ*	Blust (1980a)	thick bamboo sp.
PWMP	**patuŋ*	Blust (1980a)	thick bamboo sp.
POC	**potuŋ*	Blust (1983-84a)	bamboo
LOU	*pot*		large, thick bamboo

FIJ(E)	*bitu*		bamboo
TON	*pitu*		bamboo
PAN	**telaŋ*	Blust (1986)	bamboo sp.
PMP	**teriŋ*	Blust (1986)	bamboo sp.
PAN	**buluq*	Li (this volume)	bamboo sp.
PAN	**tamiaŋ*	Blust (1986)	bamboo sp.
PAN	**kawayan*	Blust (1980a)	spiny bamboo

8. *Barringtonia* spp. (Cut Nut: edible nuts; some species used as fish poison; used also in treatment of gonorrhoea and hepatitis)

PAN	**butun*	Wolff (this volume)	*B. asiatica*
PWMP	**bunut*	Blust (1980a)	tree sp.
POC	**putun*	French-Wright (1983)	*Barringtonia* sp.
POC	**putu*	Clark (1986)	*B. asiatica*
PMN	**putu*	Chowning (1963)	*B. asiatica*
PBV	**putu*	Ross (1985)	*Barringtonia*
PNCV	**vutu*	Clark (1986)	*B. asiatica*
SIO	*puto*		*Barringtonia*
TOL	*vutun*		*B. speciosa*
RAG	*vutu*		*B. asiatica*
ROT	*hufu*		*Barringtonia* sp.
FIJ(E)	*vutu*		*Barringtonia* sp.
PEO	**vala*	Geraghty (1990)	*B. edulis*
PNCV	**vele*	Clark (1986)	*B. edulis*
KWA	*fala*		cut nut
ARO	*hara*		*B. edulis*
KAH	*hara*		cut nut
MTA	*vele*		*B. edulis*

9. *Bischofia javanica* (Java Cedar: hardwood; used for house posts)

PEO	**koka*	Geraghty (1990)	*B. javanica*
PNCV	**koka*	Clark (1986)	tree sp.
PPN	**koka*	Biggs (n.d.)	*B. javanica*
LEW	*purukoa*		*B. javanica*
FIJ(E)	*koka damu*		a plant: *B. javanica*
TON	*koka*		tree with reddish wood: *B. javanica*

10. *Calophyllum inophyllum* (shoreline tree; used for carving)

PMP	**bitaquR*	Blust (1980a)	*C. inophyllum*
PWMP	**bintaŋuR*	Blust (1980a)	*C. inophyllum*
POC	**pitaquR*	Blust (1980a)	*Calophyllum* sp.
POC	**pitaqu (R)*	Ross (pers.comm.)	*Calophyllum* sp.
PWZ	**vitayu (r)*	Ross (1985)	*Calophyllum*
LON	*pitow*		shore tree, *C. inophyllum*

ROT	*hefau*		shore tree, *C. inophyllum*
TON	*feta?u*		*Calophyllum*
REN	*heta?u*		shore tree, *C. inophyllum*
POC	**bakuRa*	Clark (1986)	*Calophyllum* sp.
PEO	**bakuRa*	Geraghty (1990)	*Calophyllum* sp.
PSS	**baxula*	Geraghty (1990)	*Calophyllum* sp.
PNCV	**bakura*	Clark (1986)	*Calophyllum* sp.
GEL	*bayula*		large forest tree
ARO	*ba?ura*		kind of tree
RAG	*bagura*		a tree
NGU	*napakura*		tree sp., *Calophyllum*
POC	**tamanu*	Blust (1980a)	*Calophyllum* sp.
PPN	**tamanu*	Biggs (n.d.)	*Calophyllum* sp.
MUS	*tamanu*		*Calophyllum* sp.
FIJ(E)	*damanu*		*C. vitiense*
TON	*tamanu*		kind of tree
SAM	*tamanu*		*Calophyllum* sp.

11. *Canarium indicum* (*Canarium* almond, galip nut, pili nut)

PAN	**kanari*	Pawley & Green (1973)	*Canarium*
POC	**kaŋari*	Pawley & Green (1973)	*Canarium*
POC	**kaŋaRi*	French-Wright (1983)	*Canarium* almond
PMN	**kaŋari*	Chowning (1963)	*Canarium* almond
PEO	**?aŋaRi*	Geraghty (1990)	*C. indicum*
PSS	**ŋali*	Levy (1980)	almond tree
PNCV	**?aŋai*	Clark (1986)	*Canarium* almond
PSV	**na-ŋai*	Lynch (1978c)	almond tree
PPN	**makari*	Biggs (n.d.)	tree sp.
YAB	*kaŋa*		*Canarium* almond
MDR	*koŋor*		*Canarium* almond
GED	*kaŋaz*		*Canarium* almond
TOM	*kaŋali*		*Canarium* almond
GEL	*ŋali*		*Canarium*
ARO	*ŋari*		*Canarium* tree
NGU	*naŋai*		almond
TON	*makai*		*C. samoense*
SAM	*ma?ali*		*C. samoense*

12. *Casuarina equisetifolia* (South Sea Ironwood)

PAN	**aRuSu*	Pawley & Green (1973)	casuarina
PAN	**qaghuhuq*	Wolff (this volume)	*C. equisetifolia*
POC	**aRu*	Blust (1972c)	casuarina
POC	**yaRu*	Ross (n.d.)	casuarina
PMN	**yaru*	Chowning (1963)	casuarina
PCN	**ial*	Ross (1985)	casuarina
PEO	**yaRu*	Geraghty (1983)	casuarina sp.
PSS	**a (l,r)u*	Levy (1980)	casuarina sp.

PNCV	**yaru*	Clark (1986)	casuarina sp.
PCP	**ya (R)u*	Geraghty (1990)	casuarina sp.
GIT	*yaru*		casuarina
TAK	*yar*		casuarina
KWO	*lalu*		ironwood
GEL	*aru*		casuarina
MTA	*aru*		casuarina
LEW	*pwuruyalu*		she oak
FIJ(E)	*ðau*		*C. nodiflora*

13. *Ceiba pentandra* (Kapok Tree)

PMP	**kapuk*	Blust (1986)	kapok tree, *C. pentandra*
PMP	**kabu*	Blust (1986)	kapok tree
TOL	*kapup*		tree species
NAK	*kapuku*		kapok

14. *Cerbera* spp. (leaves used to relieve aches and pains; crushed seeds used to stun fish)

POC	**pasa*	French-Wright (1983)	pandanus, *Cerbera* sp.
GED	*safa*		*C. manghas*
SML	*hata*		tree with hard wood
ARO	*hata*		large tree sp.
FIJ(E)	*vasa*		*C. odollam*
EUV	*faha*		variety of pandanus
SAM	*fasa*		variety of pandanus

15. *Cinnamomum* sp. (Cinnamon Tree)

POC	**mansoku*	Blust (1972c)	tree sp.
MUS	*mosou*		cinnamon tree
LOU	*moso*		*C. xanthoneuron*
BLN	*mwasow*		cinnamon tree

16. *Citrus* spp.

PAN	**limaw*	Dyen (1953b)	citrus, lemon
PAN	**limau*	Wolff (this volume)	citrus
PMP	**muntay*	Blust (1980a)	citrus, lemon
POC	**moli*	Chowning (1963)	lemon, citrus
POC	**molis*	Ross (pers.comm.)	citrus
PNCV	**mwoli*	Clark (1986)	citrus, orange
PPN	**moli*	Biggs (n.d.)	citrus (fruit)
MAN	**moli*		wild lime
TOL	*muli*		citrus fruit
ARO	*mori*		wild orange
NGU	*namwoli*		citrus
FIJ(E)	*moli*		citrus fruit

17. *Cocos nucifera* (Coconut)

PAN	**niyuR*	Dyen (1949)	coconut
POC	**niuR*	Blust (1978b)	coconut
PMN	**niul*	Chowning (1963)	coconut
PNS	**niur (u)*	Ross (1985)	coconut

PEO	**niu*	Geraghty (1990)	coconut
PNCV	**niu*	Clark (1986)	coconut
PPN	**niu*	Biggs (n.d.)	coconut
MON	*niun (u)*		coconut
GEL	*niu*		coconut
ARO	*niu*		coconut palm
RAG	*niu*		coconut
FIJ(W)	*niu*		coconut palm, nut
TON	*niu*		coconut tree, fruit
POC	**pada*	French-Wright (1983)	sprouting coconut
PNCV	**vara*	Clark (1986)	sprouting coconut
MTU	*hara*		brain, brain marrow
TOL	*varai*		sprouting coconut
MTA	*vara*		coconut shoot
PAA	*ahale*		shooting coconut
FIJ(E)	*vara*		shooting coconut

18. *Colocasia esculenta* (Taro sp.)

PAN	**tales*	Wolff (this volume)	*C. esculenta*
POC	**talo*	French-Wright (1983)	taro sp.
POC	**talo (s)*	Ross (pers.comm.)	taro
PMN	**talo*	Chowning (1963)	taro sp.
PPC	**tayo*	Ross (1985)	taro sp.
PEO	**talo*	Levy (1980)	taro sp.
PPN	**talo*	Biggs (n.d.)	taro
MTU	*talo*		*Arum esculentum*
LAU	*alo*		taro
ARO	*aro*		taro
PAA	*taaro*		taro
FIJ(E)	*dalo*		*C. esculenta*
TON	*talo*		taro
POC	**mwao*	Blust (1981c)	taro sp.
POC	**mao*	Blust (1981c)	taro sp.
POC	**mwapo*	Ross (1988)	taro sp.
PMN	**mao*	Chowning (1963)	taro sp.
PWZ	**mavo*	Ross (1985)	taro sp.
PPN	**mafu*	Biggs (n.d.)	taro pounded for food
MTU	*maho*		long yam
NAK	*mavo*		taro (gen.)
LON	*mah*		taro variety
KIA	*mahu*		taro
MAR	*maʔu*		*C. esculenta*
PNCV	**bweta*	Clark (1986)	taro sp.
MTA	*kpweta*		*C. esculentum*
TGO	*peta*		taro
RAG	*bweta*		taro

(see also Item 24: *Cyrtosperma* sp.)

19. *Convolvulus* sp.

POC	**puRe*	Ross (pers.comm.)	creeper
PEO	**vuRe*	Geraghty (1990)	shore creeper
PSS	**vule*	Geraghty (1990)	shore creeper, *Convolvulus*
PNCV	**vue*	Clark (1986)	shore plant
PCP	**vue*	Geraghty (1990)	shore creeper
PPN	**fue*	Biggs (n.d.)	seashore creeping vine
NAK	*vule*		*Crinum* sp.
LAU	*fulefule*		creeper on the shore
PAA	*huehue*		sand grass
TON	*fue*		creeper
TAH	*hue*		gourd
HAW	*hue*		gourd

20. *Cordyline* spp. (Ti plant; victory leaves)

PMP	**siRi*	Blust (1983-84a)	shrub, *Cordyline*, *Draecena*
PMP	**tiRi*	Blust (1983-84a)	tree sp.
POC	**jiRi*	Ross (1988)	*Cordyline*
PMN	**dili*	Chowning (1963)	croton sp.
PNS	**jiri*	Ross (1985)	*Cordyline*
PEO	**jiRi*	Geraghty (1990)	*Cordyline*
PSS	**dili*	Levy (1980)	*Cordyline*
PMC	**digV*	Geraghty (1986)	*Cordyline* sp.
PPN	**tii*	Biggs (n.d.)	*Cordyline* sp.
MLS	*sir*		grass skirt
KAI	*jir*		small pandanus
KWO	*dili*		*C. fruticosa*
ARO	*diri*		*Dracaena*
TON	*sii*		*C. terminalis*
SAM	*tii*		*Cordyline* sp.
PEO	**ŋgaRi (a)*	Geraghty (1990)	*Cordyline* sp.
PNCV	**ŋgaria*	Clark (1986)	*Cordyline* sp.
PCP	**ŋgai*	Geraghty (1990)	*Cordyline* sp.
MTA	*karia*		*Dracaena*
RAG	*garia*		*Dracaena*
FIJ(E)	*ŋgai*		*Cordyline*

21. *Curcuma* sp. (Turmeric: leaves used to treat coughs, sore throat)

PMP	**leŋa*	Dempwolff (1938)	name of a plant
POC	**deŋ (w)a*	French-Wright (1983)	turmeric
PPN	**reŋa*	Biggs (n.d.)	turmeric
LOH	*eŋ*		turmeric
MTA	*rereŋa*		yolk of an egg
ROT	*reŋa*		turmeric
FIJ(E)	*rereŋa*		turmeric
TON	*eŋa*		turmeric
HAW	*lena*		yellow

POC	**yaŋo*	French-Wright (1983)	turmeric, *C. longa*
POC	**(y)aŋo*	Clark (1986)	turmeric, yellow
PEO	**yaŋo*	Geraghty (1990)	turmeric
PNCV	**aŋo*	Clark (1986)	turmeric, yellow
PCP	**yaŋo*	Geraghty (1990)	turmeric
PPN	**aŋo*	Biggs (n.d.)	turmeric
ADZ	*yaŋan*		ginger
ROV	*aŋo*		plant, *Curcuma* sp.
MTA	*aŋo*		turmeric
LEW	*puruyaŋo*		herb ginger
REN	*aŋo*		turmeric
FIJ(E)	*ðaŋo*		turmeric, *C. longa*
TON	*aŋo*		ginger

22. Cucurbitaceae (Gourds and Melons)

PAN	**timun*	Blust (1972c)	cucumber, melon
PMP	**timun*	Dempwolff (1938)	melon, cucumber
POC	**tim (o,u)*	Blust (1972c)	cucumber, melon
POC	**katimun*	Ross (n.d.)	cucumber
PPN	**timo*	Biggs (n.d.)	a plant (cucurbit)
FIJ(E)	*timo*		*Cucumis acidus*
POC	**tapaya*	Clark (1986)	gourd sp.
PNCV	**tavaya*	Clark (1986)	gourd sp.
MTA	*wotavae*		k.o. gourd
RAG	*tavai*		gourd
FIJ(E)	*tavaya*		bottle

23. *Cycas rumphii* (Cycad Palm, Malayan Palm Fern, peace leaves: starch source; used in the treatment of yaws and stomach ailments)

PNCV	**mwele*	Clark (1986)	Cycad palm, *C. circinalis*
MTA	*mwele*		*Cycas*
PAA	*mail*		*Cycas*
NGU	*namwele*		*Cycas*
POC	**baibai*	Ross (pers.comm.)	Cycad palm
TOL	*baibai*		arborescent fern
LAU	*baibai*		Cycad
KWO	*baibai*		Cycad
ARE	*paipai*		Cycad

24. *Cyrtosperma* sp. (Swamp Taro)

POC	**(m)pulaka*	French-Wright (1983)	taro sp.
PEO	**buRaka*	Geraghty (1990)	swamp taro
PMC	**pwulaka*	Geraghty (1990)	swamp taro
PNCV	**buaŋga*	Clark (1986)	swamp taro
TOL	*pulaka*		wild arrowroot
AUA	*fuula*		taro
MTA	*puaka*		boggy ground, mud
XAR	*buraa*		variety of taro
PAA	*viek*		water taro

25. *Derris* sp. (Fish Poison Plant)

PAN	**tuba*	Blust (1969)	fish poison
POC	**tupa*	Clark (1986)	fish poison plant
PMN	**tuva*	Chowning (1963)	derris root
PBV	**tuva*	Ross (1985)	derris root
PEO	**tuva*	Geraghty (1990)	fish poison plant
PNCV	**tuva*	Clark (1986)	fish poison plant
WED	*tuva*		derris root
KLA	*tuva*		poisonous root, used for fishing
MTU	*tuha*		dynamite plant
GEL	*tuva*		derris root
ARO	*uha*		derris root
MTA	*tua*		creeping plant used to poison fish

26. *Dioscorea* spp. (*D. alata* 'Greater Yam', *D. esculenta* 'Lesser Yam')

PAN	**qubi (h)*	Dyen (1953b)	yam sp.
PAN	**qubi*	Wolff (this volume)	*D. alata*
POC	**qupi*	Pawley & Green (1973)	yam sp.
PMN	**huvi*	Chowning (1963)	yam sp.
PNCV	**ʔuvi*	Clark (1986)	yam sp.
PPN	**ʔufi*	Biggs (n.d.)	yam
KLA	*kuvi*		type of yam
NAK	*huvi*		yam generic
TOL	*up*		long yam
GEL	*uvi*		yam
ARO	*uhi*		yam
LEW	*yui*		yam generic
FIJ(E)	*uvi*		*D. alata*
TON	*ʔufi*		*D. alata*
PAN	**ɣamut*	Dempwolff (1926)	root
POC	**CamV*	French-Wright (1983)	yam sp.
PNCV	**damu*	Clark (1986)	yam sp.
MTA	*nam*		*Dioscorea* sp.
LNW	*dɛm*		yam
POC	**kamis*	Ross (n.d.)	short yam
TMI	*kamit*		yam
YAB	*ami*		yam
YLU	*amis*		short yam
PNCV	**mwaru-*	Clark (1986)	wild yam sp.

27. *Dracontomelum* sp. (New Guinea Walnut)

PAN	**daqu*	Blust (1986)	*D. edule*
PEO	**ra (q)u*	Geraghty (1990)	tree sp.
PNCV	**rau*	Clark (1986)	*D. vitiense*
TOL	*laup*		tree sp.
MTA	*rau*		a fruit tree

PAA	*alau*		Dragon plum
LEW	*purlu*		Dragon plum, *D. vitiense*
NGU	*narau*		*D. vitiense*
FIJ(E)	*tarau*		*D. vitiense*

28. *Erythrina indica* (Coral Tree: used for fence posts; edible leaves)

PMP	**DapDap*	Blust (1986)	a tree: *Erythrina* sp.
PMP	**DeDap*	Blust (1986)	a tree: *Erythrina* sp.
POC	**dada*	Blust (1972c)	coral tree
POC	**rara (p)*	Ross (pers.comm.)	coral tree
PMN	**rara*	Chowning (1963)	coral tree
PSS	**rara*	Levy (1980)	tree sp.
PEO	**rara*	Geraghty (1990)	*Erythrina*
PNCV	**nrara*	Clark (1986)	tree sp.
PNCV	**rara*	Clark (1986)	tree sp.
PPN	**lala*	Biggs (n.d.)	tree: *Vitex* sp.
ROV	*raporapo*		*Erythrina* sp.
GEL	*rara*		*Erythrina*
ARO	*rara*		*E. indica*
MTA	*rara*		*Erythrina*, coral tree
LNW	*raa*		blood-tree
FIJ(E)	*rara*		*E. indica*
TON	*lala*		tree: *Vitex* sp.

29. *Eugenia malaccensis/Syzygium malaccensis* (Malay Apple/Rose Apple: used as an abortifacient)

POC	**kapika*	Grace (1969)	Malay apple
PMN	**kavika*	Chowning (1963)	Malay apple
PWZ	**kavika*	Ross (1985)	Malay apple
PPN	**kafika*	Biggs (n.d.)	a tree, Malay apple
TMI	*kapig*		Indian rose apple
NAK	*gaiva*		Malay apple tree
GEL	*ɣaviɣa*		Malay apple
KWO	*ʔafiʔa*		Malay apple
MTA	*ɣaviɣa*		Malay apple
LEW	*kauka*		Malay apple
ROT	*hahiʔa*		Malay apple
FIJ(E)	*kavika*		Malay apple
TON	*fekika*		Malay apple

30. *Ficus* spp. (edible leaves, some species: used in treatment of stings)

PMP	**nunuk*	Blust (1983-84a)	a tree, the banyan
TOL	*nunu*		banyan tree, *F.religiosa*
LKU	*nun*		banyan
FIJ(E)	*nunu*		fig tree sp., *F. vitiensis*
PAN	**zabi*	Blust (1972c)	*Ficus* sp.
POC	**sapi (rewa)*	Blust (1972c)	*Ficus* sp.
FIJ(E)	*savirewa*		a tree, *F. tinctoria*

PMP	**qaRa?*	Blust (1986)	a tree, *Ficus* sp.
PPN	**qaoa*	Biggs (n.d.)	banyan tree, *Ficus* sp.
ROV	*kalala*		banyan, *Ficus* sp.
TON	*?ovava*		banyan tree
POC	**mpaka*	Clark (1986)	*F. bengalensis*
PNCV	**baŋga*	Clark (1986)	*F. bengalensis*
MTA	*paka*		banyan
LNW	*bak*		banyan
SEA	*veak*		banyan
FIJ(E)	*baka*		banyan tree, *F. obliqua*

31. *Heliconia* sp. (herbaceous plant)

POC	**pao*	Clark (1986)	plant sp.
PNCV	**vao*	Clark (1986)	plant sp.
GEL	*vaovao*		shrub with large leaves
MTA	*vao*		a heliconium
FIJ(E)	*vao*		a plant, *Bleekeria elliptica*

32. *Hernandia peltata* (Sea Hearse, Lantern Tree: used for canoe building)

PEO	**biRibiRi*	Geraghty (1990)	shore tree, *H. peltata*
PMC	**pigipigi*	Geraghty (1990)	shore tree
PSS	**bilibili*	Levy (1980)	shore tree
PNCV	**biribiri*	Clark (1986)	tree sp., *H. peltata*
PPN	**pipi*		tree sp., *Hernandia* sp.
TOL	*palubir*		*Hernandia*
GEL	*bibili*		sp. of tree
LAU	*bilibili*		*Thespesia populnea*
MTA	*pirpir*		a tree
PAA	*virvir*		*H. peltata*
LEW	*purpelpele*		*H. peltata*
TON	*pipi*		tree with inedible fruit whose kernel is used for scenting oil

33. *Hernandia* sp.

PEO	**puka*	Geraghty (1990)	*H. pisonia*
PNCV	**buka*	Clark (1986)	*Pisonia*
PPN	**puka*	Biggs (n.d.)	a tree, *H. pisonia*
ROV	*bakabaka*		*H. peltata*
NMK	*bik*		*Pisonia* or *Hernandia*
NGU	*napuka*		*Gyrocarpus americanus*

34. *Hibiscus manihot* (*Abelmoschus manihot*) (Hibiscus Cabbage, Slippery Cabbage)

POC	**mpele*	French-Wright (1983)	shrub, hibiscus sp.
PCP	**bele*	Geraghty (1990)	*H. manihot*
PPN	**pele*	Biggs (n.d.)	*H. manihot*
GED	*bel*		shrub like the croton with aromatic dark green leaves
FIJ(W)	*bele*		*H. manihot*
TON	*pele*		*Abelmoschus manihot*

35. *Hibiscus tiliaceus* (Cottonwood, Beach Hibiscus, Burao: bark fibre used for manufacture of rope, cordage, baskets, mats)

PAN	**baru[ʔh]*	Dyen & McFarland (1970)	tree sp., hibiscus
POC	**paRu*	Ross (pers.comm.)	*H. tiliaceus*
PEO	**vaRu*	Geraghty (1990)	*H. tiliaceus*
PMC	**kili-fau*	Geraghty (1990)	tree sp.
PSS	**valu*	Levy (1980)	tree sp.
PNCV	**va (rR)u*	Clark (1986)	*H. tiliaceus*
PCP	**vau*	Geraghty (1990)	tree sp.
PPN	**fau*		*H. tiliaceus*
GIT	*paru*		hibiscus
ROV	*varu*		*H. tiliaceus*
GEL	*valu*		*H. tiliaceus*
ARO	*haru*		kind of tree
MTA	*varu*		*H. tiliaceus*
LNW	*bal*		hibiscus
ROT	*hau*		hibiscus
FIJ(W)	*vau*		hibiscus spp.
FIJ(E)	*vau*		*H. tiliaceus*
PNCV	**bwakala*	Clark (1986)	hibiscus sp.
MTA	*kpwayala*		flowering hibiscus
RAG	*bwayala*		hibiscus

36. *Imperata cylindrica* (Kunai Grass, Plume Grass)

PAN	**Riaq*	Blust (1986)	sword grass
PWMP	**eRiq*	Blust (1986)	sword grass
POC	**Reqi*	Ross (1988)	kunai grass
PBV	**reɣi*	Ross (1985)	kunai grass
PEO	**Reʔi*	Geraghty (1990)	grass sp.
PMC	**reV*	Geraghty (1990)	grass sp.
PSS	**lei*	Levy (1980)	grass sp.
TAW	*lei*		kunai
MTU	*rei*		grass
GIT	*rek*		kunai
ROV	*rekiti*		*I. arundinacea*
ARO	*rei*		kunai
PMP	**guRun*	Ross (n.d.)	*I. cylindrica*
POC	**kuRu (n)*	Ross (n.d.)	*I. cylindrica*
PSS	**(gu)guru*	Ross (pers.comm.)	grass
MTU	*kurukuru*		long grass used for thatching
DOU	*ʔuruʔuru*		kunai
BGO	*(gu)guru*		grass
LAU	*ʔoroʔoro*		weeds, grass
ARO	*oraora*		sp. of grass

37. *Inocarpus edulis* (Polynesian Chestnut, Tahitian Chestnut)

PAN	**ipil*	Pawley & Green (1973)	*Inocarpus* sp.
POC	**ipi (l)*	Pawley & Green (1973)	Tahitian chestnut
POC	**qipi*	French-Wright (1983)	Tahitian chestnut
PMN	**kivi*	Chowning (1963)	Polynesian chestnut
PPN	**ifi*	Biggs (n.d.)	Tahitian chestnut
BWA	*givi*		wild chestnut
SBO	*ivi*		*I. edulis*
ROT	*ʔifi*		*I. edulis*
FIJ(E)	*ivi*		*I. fagiferus*
TON	*ifi*		*I. edulis*
PNCV	**mwampwe*	Clark (1986)	Tahitian chestnut

38. *Intsia bijuga* (Pacific Teak: hardwood tree, coastal, edible leaves; used for canoe hulls; bark used to treat urinary ailments)

PAN	**teRas*	Blust (1972c)	hardwood tree
POC	**ntoRa*	Blust (1972c)	hardwood
PEO	**toRa*	Geraghty (1990)	*I. bijuga*
PNCV	**tora*	Clark (1986)	*I. bijuga*
PNCV	**to (Rr)a*	Clark (1986)	*I. bijuga*
PCP	**toa*	Geraghty (1990)	*I. bijuga*
PPN	**toa*	Biggs (n.d.)	tree sp., casuarina
LAU	*ora*		canoe built of planks sewn together
ARO	*ora*		sp. of tree from which the best canoes are made; plank-built canoe
MTA	*tora*		a timber tree
RAG	*tora*		high tree
ATC	*tor*		tree sp., used for canoes
FIJ(E)	*doa*		heartwood of a tree,solid
TON	*toa*		casuarina or ironwood tree
REN	*toa*		ironwood

39. *Laportea* spp. (Stinging Nettle Tree)

PAN	**lateŋ*	Blust (1972c)	a tree, the stinging nettle
PAN	**jalateng*	Wolff (this volume)	nettle
POC	**salato*	Blust (1972c)	*Laportea*, sharp
POC	**salatoŋ*	Clark (1986)	nettle tree
POC	**jalatoŋ*	Ross (1989b)	nettle tree
PEO	**jalato*	Geraghty (1983)	nettle tree
PNCV	**ŋgalato*	Clark (1986)	nettle tree
PPN	**salato*	Biggs (n.d.)	tree nettle, *Laportea*
ARE	*rururao*		a nettle
ARO	*darao*		sp. of nettle
MTA	*kalato*		a nettle tree
RAG	*galato*		nettle tree

LNW	*gelat*		stinging leaf bush
FIJ(E)	*salato*		nettle plant, *Laportea*

40. *Mangifera indica* (Mango)

PAN	**balunuq*	Blust (1980a)	type of mango
PWMP	**balunuq*	Blust (1980a)	mango sp.
PAN	**paSuq*	Dyen & McFarland (1970)	wild mango
POC	**pau (q)*	Ross (pers.comm.)	mango
PBV	**vau*	Ross (1985)	mango
PMP	**wai*	Blust (1986)	mango
POC	**waiwai*	French-Wright (1983)	mango
PMN	**wai*	Chowning (1963)	mango tree
PMK	**wai*	Ross (1985)	mango tree
MTU	*vaivai*		wild mango sp.
BWA	*waiobi*		pawpaw
NBM	*wowai*		mango
ARE	*arai*		mango
ARO	*wawaibeo*		1,000 mangoes

41. *Metroxylon* spp. (Sago Palm: leaves used for roof thatching)

PMP	**Rambia*	Blust (1983-84a)	sago palm
POC	**dampia*	French-Wright (1983)	sago palm
POC	**labia*	Ross (1985)	sago palm
POC	**nabia*	Ross (1988)	sago palm
PMN	**labia*	Chowning (1963)	sago palm
PEO	**Rabia*	Geraghty (1990)	starch, arrowroot
PCP	**abia*	Geraghty (1990)	starch, arrowroot
MTU	*rabia*		sago palm
BWA	*labia*		sago
BOL	*rabia*		sago palm
NAK	*labia*		sago palm
MTA	*piai*		pith of sago
FIJ(E)	*yabia*		arrowroot, starch
PAN	**qatep*	Dyen (1953b)	thatch
PMP	**qatep*	Blust (1981c)	thatch
POC	**qatop*	French-Wright (1983)	sago palm,thatch
PMN	**hato*	Chowning (1963)	sago palm
PNCV	**ato*	Clark (1986)	sago palm,thatch
PPN	**qato*	Biggs (n.d.)	thatch
MUY	*loukwat*		sago-leaf thatch
NAK	*hato*		sago palm; thatch
LOU	*arop*		thatch
PET	*atoh*		sago palm
GEL	*ato*		sago palm; thatch
LAU	*sao*		sago palm
ARO	*ao*		sago palm
MTA	*ota*		sago palm

TGO	*rato*		sago palm
ATC	*at*	sago palm	
TON	*ʔato*		thatch, roof
SAM	*ato*		thatch
MAO	*ato*		roof
PNCV	**takura*	Clark (1986)	thatch, sago palm
MTA	*tuwur*		to thatch
LNW	*tagoo*		thatch leaf (palm)
PAA	*takul*		sago
NGU	*natakura*		thatch palm
FIJ(E)	*ula*		to thatch a house with grass

42. *Morinda citrifolia* (Indian Mulberry: red dyes from bark and roots; famine food)

PAN	**baŋkudu*	Dempwolff (1938)	*M. citrifolia*
POC	**kurat*	Geraghty (1983)	*M. citrifolia*
PNCV	**kura-ti*	Clark (1986)	*M. citrifolia*
ROV	*gurata*		*M. citrifolia*
MTA	*wura*		a plant
LEW	*purkula*		Indian Mulberry tree
NGU	*nakura*		tree sp.
POC	**ñoñum*	Blust (1978b)	*M. citrifolia*
POC	**nonum*	French-Wright (1983)	*M. citrifolia*
PPC	**nonu*	Ross (1985)	*M. citrifolia*
PPN	**nonu*	Biggs (n.d.)	*M. citrifolia*
MTU	*nonu*		tree, *M. citrifolia*
BWA	*nono*		plant, *M. citrifolia*
GIT	*nono*		*M. citrifolia*
TAK	*non*		*M. citrifolia*
GED	*nonom*		*M. citrifolia*
FIJ(E)	*noni*		a shrub, *M. citrifolia*
KIR	*non*		*M. citrifolia*

43. *Musa fehi* (Banana sp.)

POC	**soanka*	Clark (1986)	plantain
PEO	**soRaŋga*	Geraghty (1990)	banana sp.
PSS	**(cs)olaŋga*	Geraghty (1990)	banana sp.
PNCV	**tsoaŋga*	Clark (1986)	plantain
PNCV	**jo (R)aŋga*	Geraghty (1990)	banana sp.
PCP	**soaŋga*	Geraghty (1990)	banana sp.
PPN	**soaka*	Biggs (n.d.)	banana sp.
ARO	*toraɣa*		banana (upwards pointing)
BRO	*toraka*		kind of banana
NGU	*soaga*		planatain
FIJ(E)	*soaŋga*		banana sp., *M. fehi*
SAM	*soaʔa*		indigenous banana (*Musa* sp.)

44. *Musa* spp. (Banana)

PAN	**punti*	Blust (1976a)	banana sp.
POC	**punti*	French-Wright (1983)	banana sp.
POC	**puti*	Clark (1986)	banana sp.
POC	**pudi*	Ross (1988)	banana sp.
PMN	**pudi*	Chowning (1963)	banana sp.
PNCV	**vudi*	Clark (1986)	banana sp.
PNCV	**vizi*	Clark (1986)	banana sp.
PPN	**futi*	Biggs (n.d.)	banana
TUB	*udi*		banana
MAN	*vudi*		banana
TOL	*vudu*		banana (generic)
GEL	*vundi*		banana, plantain
ARO	*hugi*		banana
BRO	*huki*		banana
RAG	*ihi*		banana
LNW	*vih*		banana
PAA	*ahis*		banana
FIJ(E)	*vudi*		bananas in general
TON	*fusi*		plantain or banana

45. *Ochrosia oppositifolia* (tree sp., 15-25m)

PEO	**vaRo*	Geraghty (1990)	*Ochrosia* sp.
PNCV	**va(rR)ova(rR)o*	Geraghty (1990)	*Ochrosia* sp.
PCP	**vao*	Geraghty (1990)	*Ochrosia* sp.
PPN	**fao*	Biggs (n.d.)	tree (*Ochrosia* sp.)
GED	*fazoŋ*		tree: stem used to make canoes
ROV	*vao*		a littoral tree
FIJ(E)	*vao*		plant, *Bleekeria ellipt.*
TON	*fao*		*O. parviflora*
EUV	*fao*		name of a tree
EFU	*fao*		tree sp.

(see also Item 32: *Heliconia* sp.)

46. *Pandanus* spp. (Screw Pine)

PAN	**panDan*	Blust (1982a)	pandanus sp.
POC	**panda*	French-Wright (1983)	pandanus sp.
POC	**padran*	Ross (1988)	pandanus sp.
PMN	**panda*	Chowning (1963)	pandanus sp.
PLN	**fadan*	Ross (1985)	pandanus sp.
PEO	**vanra*	Levy (1980)	pandanus sp.
PCP	**vadra*	Geraghty (1983)	pandanus sp.
PMC	**fata*	French-Wright (1983)	pandanus
PPN	**fara*	Biggs (n.d.)	pandanus
MLI	*padan*		pandanus
LAV	*aran*		pandanus
NAL	*fadan*		pandanus

LAU	*fada (da)*		pandanus
MTA	*vana*		pandanus
ROT	*hata*		pandanus
FIJ(E)	*vadra*		*P. odoratissimus*
TON	*faa*		pandanus
POC	**kiRe*	French-Wright (1983)	pandanus sp.
PEO	**kiRe*	Geraghty (1990)	pandanus sp.
PMC	**ki (ae)*	Geraghty (1990)	pandanus sp.
PSS	**xile*	Levy (1980)	pandanus sp.
PNCV	**kire*	Clark (1986)	pandanus sp.
PNCV	**ki (rR)e*	Clark (1986)	pandanus sp.
PPN	**kie*	Biggs (n.d.)	pandanus sp. used for making fine mats
ROR	*ere?ere*		pandanus
MTU	*geregere*		*P. odoratissimus*
ARE	*?ire*		pandanus
ARO	*kire*		*P. odoratissimus*
MTA	*ɣire*		*P. odoratissimus*
NGU	*nakie*		mat pandanus
TON	*kie*		pandanus; very fine mat
POC	**paku*	Ross (pers.comm.)	pandanus
PSS	**vaɣu*	Levy (1980)	pandanus sp.
PNCV	**vaku*	Clark (1986)	pandanus sp.
TAL	*vagu*		pandanus
KWO	*fa?u*		pandanus
ARO	*ha?u*		pandanus
FGN	*haɣu*		pandanus
MTA	*vau*		a pandanus
NGU	*navaku*		pandanus sp.
POC	**pau (m)*	French-Wright (1983)	pandanus
TOL	*vaum*		a species of pandanus
POC	**pasa*	French-Wright (1983)	pandanus sp.
GED	*safa*		*C. manghas*
SML	*hata*		k.o. tree with hard wood
ARO	*hata*		large tree sp.
FIJ(E)	*vasa*		*C. odollam*
EUV	*faha*		variety of pandanus
SAM	*fasa*		variety of pandanus

47. *Pemphis acidula* (hardwood shore tree)

PEO	**giRa*	Geraghty (1990)	*P. acidula*
PMC	**gia*	Geraghty (1990)	tree sp.
PSS	**gil (ei)*	Geraghty (1990)	strong shore tree
PNCV	**gi (rR)a*	Geraghty (1990)	hardwooded shrub

48. *Piper methysticum* (Kava)

PNCV	**maloku*	Clark (1986)	kava
RAG	*maloyu*		kava, *P. methysticum*
PAA	*malou*		kava
NMK	*malok*		kava
NGU	*namaloku*		kava

(see also Crowley, this volume)

49. *Pometia pinnata* (Native Lychee; Oceanic Lychee)

PEMP	**tawan*	Blust (1978b)	tree sp.: *Pometia*
POC	**(n)tawa*	Pawley & Green (1973)	*Pometia*
POC	**tawan*	French-Wright (1983)	*Pometia* spp
PNCV	**dau*	Clark (1986)	*Pometia* sp.
PPN	**tawa*	Biggs (n.d.)	*P. pinnata*
BWA	*tawana*		species of tree
GED	*tau*		a tree
MUS	*tao (n)*		tree with sweet fruit
NAU	*taw*		tree with yellow flowers
ARO	*awa*		tree, sp. of lichi
MTA	*tawan*		a kind of lichi
NGU	*nadau*		*Pometia*
ROT	*fava*		kind of fruit tree
FIJ(E)	*dawa*		*P. pinnata*

50. *Pritchardia pacifica* (Fiji Fan Palm)

PEO	**viRu*	Geraghty (1990)	fan (umbrella) palm
PSS	**vilu*	Levy (1980)	fan palm
PNCV	**vilok*	Geraghty (1990)	fan palm
PPN	**piu*	Biggs (n.d.)	*P. pacifica*
ARO	*hiu*		tree species
MTA	*viloy*		umbrella palm
XAR	*pii*		kind of palm tree
FIJ(E)	*viu*		fan palm, *P. pacifica*

51. *Pterocarpus indicus* (Rose Wood: used as a live fence, for house timber and for furniture; bark used in treatment of dysentery)

PMP	**nara*	Blust (1980a)	a tree, *P. indica*
PMP	**naRa*	Blust (1980a)	a tree, *P. indica*
POC	**na (rR)a*	Ross (pers.comm.)	*P. indica*
PEO	**naRa*	Geraghty (1990)	tree sp.
PNCV	**na (rR)a*	Clark (1986)	tree sp.
MTU	*nara*		*P. indica*
GIT	*nara*		tree, *P. indicus*
TMI	*nal*		*Pterocarpus*
LOU	*na*		tree with red wood

52. *Pueraria* sp. (Vine: yam-like plant; edible tubers some spp.)

POC	**(w)aka*	Clark (1986)	plant sp.
PEO	**Raka*	Geraghty (1990)	vine, *Pueraria*, net fibre
PSS	**laxa*	Geraghty (1990)	small fish net
PNCV	**aka*	Clark (1986)	*Pueraria* sp.
PCP	**aka*	Geraghty (1990)	vine for nets, *P. trilobata*
PPN	**aka*	Biggs (n.d.)	creeper sp. (*Pueraria)*
GEL	*laga*		small net for *palolo* worm
ARE	*ra?a*		square fishing net
RAG	*aga*		yam with blue flowers
FIJ(E)	*yaka*		creeper, *P. tuberosus*
TON	*aka*		leguminous creeper

53. *Rhizophora* spp. (Mangrove)

PAN	**(tT)eŋe(rR)*	Blust (1972c)	mangrove
POC	**toŋo*	Blust (1972c)	mangrove
POC	**ntoŋo*	Blust (1972c)	mangrove
POC	**toŋoR*	Ross (pers.comm.)	mangrove
PMN	**toŋo*	Chowning (1963)	mangrove
PLN	**toŋor*	Ross (1985)	mangrove
PNCV	**toŋo*	Clark (1986)	mangrove
PPN	**toŋo*	Biggs (n.d.)	mangrove
LAV	*toŋoŋ*		mangrove
MUS	*toŋo*		mangrove
GEL	*toŋo*		mangrove
LNW	*toŋ*		mangrove
NGU	*natatoŋa*		mangrove
FIJ(E)	*doŋo*		mangrove, *Bruguiera gymn.*
TON	*toŋo*		mangrove
KIR	*toŋo*		mangrove

54. *Saccharum edule* (Pitpit; Fiji Asparagus)

POC	**tampukal*	French-Wright (1983)	sugarcane sp.
PMN	**tabukala*	Chowning (1963)	pitpit
BWA	*tabugala*		edible plant like sugarcane
MLM	*tabu?ala*		*S. edule*
GED	*tabu*		sugarcane, *S. edule*
KOV	*tabuka*		*S. edule*
NAK	*tabua*		*Saccharum* sp.
BAN	*tabogana*		wild pitpit

55. *Saccharum officinarum* (Sugarcane)

PAN	**tebuS*	Blust (1969)	sugarcane
POC	**topu*	French-Wright (1983)	sugarcane
PMN	**tovu*	Chowning (1963)	sugarcane
PEO	**tovu*	Levy (1980)	sugarcane
PNCV	**tovu*	Clark (1986)	sugarcane
BWA	*tovu*		sugarcane

MTU	*tohu*		sugarcane
NAK	*tovu*		sugarcane
GEL	*tovu*		sugarcane
ARO	*ohu*		sugarcane
MTA	*tou*		sugarcane
TGO	*tovu*		sugarcane
FIJ(E)	*dovu*		sugarcane
TON	*too*		sugarcane

56. *Saccharum* sp.

POC	**pi (n)so*	French-Wright (1983)	wild sugarcane sp.
PNCV	**viso*	Clark (1986)	edible cane sp.
PPN	**fiso*	Biggs (n.d.)	k.o. wild sugarcane
MTU	*hido*		a wild cane
KAI	*vis*		*S. spontaneum*
GEL	*viho*		sp. of shore lily, *Crinum*
MTA	*viso*		reed with edible flower heads
LEW	*vio*		cane flower (edible)
FIJ(E)	*viðo*		wild sugarcane
SAM	*fiso*		*S. floridulum*

57. *Spondias dulcis* (Polynesian Plum; Golden Apple)

POC	**(q)uRi*	Pawley & Green (1973)	Polynesian plum
POC	**quri*	Clark (1986)	Polynesian plum
PMN	**huri*	Chowning (1963)	Polynesian plum
PEO	**uRi*	Geraghty (1990)	k.o. tree, *S. dulcis*
PSS	**uli*	Levy (1980)	*S. dulcis*
PNCV	**usi*	Clark (1986)	tree sp., *S. dulcis*
PNCV	**u (Rr) (iu)*	Geraghty (1990)	Polynesian plum
PCP	**uRi*	Geraghty (1990)	Polynesian plum
PPN	**wii*	Biggs (n.d.)	mango (*S. dulcis)*
NAK	*huri*		*S. dulcis*
LAU	*uli*		k.o. tree, *S. dulcis*
KWO	*uli*		Polynesian plum
MTA	*ur*		*S. dulcis*
MTA	*us*		*S. dulcis*
RAG	*uhi*		mummy apple
ROT	*vii*		*S. dulcis*
TON	*vii*		*S. dulcis*
PNCV	**mali(mali)*	Clark (1986)	*S. dulcis*

58. *Terminalia catappa* (Indian Almond; Java Almond; Okari)

PAN	**(tT)ali(cs)ay*	Dempwolff (1938)	*Terminalia*
PAN	**talisay*	Wolff (this volume)	*T. catappa*
PMP	**[t]ali[t]aj*	Dempwolff (1938)	*Terminalia* sp.
POC	**tali(n)se*	French-Wright (1983)	Indian almond
POC	**talinse*	Clark (1986)	*Terminalia* sp.
POC	**talise*	Ross (1988)	*T. catappa*

PMN	**talise*	Chowning (1963)	Indian almond
PNS	**talise*	Ross (1985)	*T. catappa*
PNCV	**talise*	Clark (1986)	*Terminalia* sp.
PPN	**talie*	Biggs (n.d.)	a tree, *Terminalia* sp.
GIT	*talizo*		*T. catappa*
MLL	*taliza*		*T. catappa*
GED	*tali*		*T. catappa*
TOM	*talis*		*T. catappa*
BLI	*talize*		*T. catappa*
ROV	*tatalise*		*T. catappa*
GEL	*talihe*		*T. catappa*
MTA	*salite*		*T. catappa*
NGU	*natalie*		*T. catappa*
FIJ(E)	*daliði*		*Terminalia*
TON	*telie*		*Terminalia* sp.
PAN	**katapaŋ*	Blust (1972c)	name of a tree
POC	**(ŋ)ka (n)tapa*	Blust (1972c)	*Terminalia*
EFU	*katafa*		plant with long leaves
PEO	**tavoRa*	Geraghty (1990)	*Terminalia* sp.
PNCV	**tavoRa*	Geraghty (1990)	*Terminalia* sp.
MTA	*tawora*		a tree
RAG	*tavoa*		deciduous tree with edible leaves and nuts
LNW	*tavoro*		a fruit
LEW	*purutawo*		sea almond, *T. catappa*
FIJ(E)	*tavola*		*T. catappa*

59. *Vitex cofassus* (hardwood tree; used in house construction)

POC	**vasaRa*	Ross (1985)	hardwood tree
PNS	**vasara*	Ross (pers.comm.)	*V. cofassus*
PSS	**vasa*	Ross (pers.comm.)	*V. cofassus*
MON	*hasala*		*V. cofassus*
ROV	*vasara*		large tree
KIA	*varaha*		*V. cofassus*
GEL	*vaha*		*V. cofassus*
KWO	*fata*		*V. cofassus*
ARE	*hata*		a tree, hardwood
ARO	*hata*		a large tree sp.

60. *Zingiber* spp. (Ginger)

PAN	**leyqa*	Blust (1971)	ginger
PAN	**leqia*	Pawley & Green (1973)	ginger
PAN	**laqeya*	Wolff (this volume)	ginger
POC	**laqia*	Blust (1984c)	ginger
PMN	**lahia*	Chowning (1963)	ginger
PWZ	**layia*	Ross (1985)	ginger
PSS	**ria*	Levy (1980)	ginger
ADZ	*rakia*		ginger

TMI	*lagi*		ginger
YAB	*lai*		ginger
NAK	*lahia*		ginger
GEL	*ria*		ginger
ARO	*ria*		ginger
FIJ(W)	*ðaŋolaya*		ginger, yellow variety
PEO	**yaŋo*	Geraghty (1983)	ginger

(see also Item 21: *Curcuma* sp.)

3. DISCUSSION

3.1 CULTURAL IMPLICATIONS

Nearly all of the sixty best-known trees and plants set out above have a practical application in the daily lives of Melanesian Austronesian-speakers, and in all likelihood in the lives of Austronesians outside this area. It is because they are utilitarian that they have become important, with widespread cognate sets. The sample of flora listed may be divided as follows:

1. Edible leaves, vegetables, greens:
   Erythrina indica, Ficus spp., *Hibiscus manihot, Intsia bijuga*
2. Nuts:
   Areca catechu, Barringtonia spp., *Canarium indicum, Cinnamomum* sp., *Dracontomelum* sp., *Inocarpus edulis, Terminalia catappa*
3. Fruit:
   Citrus spp., *Mangifera indica, Pometia pinnata, Spondias dulcis, Syzygium malaccensis*
4. Staples:
   Alocasia macrorrhiza, Artocarpus spp., *Cocos nucifera, Colocasia esculenta, Cycas rumphii, Cyrtosperma* sp., *Dioscorea* spp., *Metroxylon* spp., *Musa* spp., *Pueraria* spp.
5. Seeds/Decoration:
   Adenanthera pavonina, Cordyline spp., *Curcuma* spp., *Morinda citrifolia*
6. Housing/Building:
   Adenanthera pavonina, Bischofia javanica, Calophyllum inophyllum, Casuarina equisetifolia, Erythrina indica, Hernandia peltata, Intsia bijuga, Metroxylon spp., *Vitex cofassus*
7. Fishing:
   Antiaris toxicaria, Barringtonia spp., *Derris* spp.

In terms of diet, the picture implied by the reconstructions for Melanesian Austronesian society in times past is little different in rural areas of Melanesia today. European-introduced greens have largely replaced edible ferns in some areas, but nuts are still much in demand as a source of protein in an area where fresh meat and fish are not readily available on a daily basis. The staple foods remain much the same today as in the past, with the emphasis on root crops. Famine foods such as fermented breadfruit stored in pits are largely only remembered

by the elderly, since the introduction of rice in colonial times has largely eliminated the need for such provisions.

3.2 SEMANTIC CHANGE

Inevitably there are changes in the meaning of many of the original etyma as they are reflected in the daughter languages. In many cases this development is hardly surprising, since for many reconstructed forms it is extremely difficult, if not impossible, to assign a precise single meaning to a given reconstructed form, especially where abstractions are concerned. With reconstructions denoting concrete objects the problem of polysemy is somewhat reduced, but by no means eliminated. Consider, for example, the following example, taken from Blust (1983-84a:44):

> **baŋah* 'palm sp.': HAN *baŋa*, 'tall palm (probably *Oriana decipiens Becc.*)', AKL *baŋa (h)*, 'palm tree: *Oriana palindan*', MAR *baŋa*, 'palm tree', TAE *baŋa*, 'a palm: *Metroxylon elatum* Mart.', MAK *baŋa* 'kind of pandanus'

In this example four different species are involved, although all except the last is a palm. Even within the context of major flora, however, there can be some surprising semantic shifts. Witness, for example, the Central Papuan area, where one of the most commonly attested forms for breadfruit, a reflex of POC **baReko*, denotes sago palm, this in an area where reflexes of POC **rabia* abound. This raises the question of the sources of multiple reconstructions for a single lexical item.

A common semantic shift away from the original posited meaning of a reconstructed form is an extension from the item itself to the function of that item and even the product made from that item. A good case in point concerns the *Pueraria* (Item 52). The *Pueraria* is a yam-like vine, whose reconstructed form for POC (**(w)aka)* has just that meaning. The PEO reconstruction, a little lower, denotes a vine, a fibre from which nets are made. By the time one reaches the PSS reconstruction, (**laxa)*, the meaning has moved as far as the object made with the vine, namely a small fish net. Examples such as those discussed above are not at all uncommon in the Austronesian family, as a perusal of the witness reflexes of early reconstructions such as Dempwolff's 2,215 Proto Austronesian lexical forms readily demonstrates.

3.3 MULTIPLE RECONSTRUCTIONS

One of the problems not easily resolved is that of multiple reconstructions for single, seemingly uncomplicated lexical items such as major flora terms. In the sample presented in this paper, we have the following striking cases, for example:

breadfruit	POC **kuluR*, POC **baReko*, PEO **maRi*
Calophyllum sp.	POC **pitaquR*, POC **bakuRa*, POC **tamanu*
Cordyline sp.	POC **jiRi*, PEO **jiRi*, PEO **ŋgaRi (a)*

While multiple reconstructions can clearly be assigned to different species in some cases, for example with yam and taro species, the same is not true for items where multiple reconstructions clearly have a single species referent. By the same token, it is to be hoped that eventually systematic reconstructions can be produced for flora items whose geographical range covers the whole Austronesian area, but for which reconstructions are at present lacking for either the Oceanic or non-Oceanic sub-group areas.

3.4 DISTRIBUTION OF REFLEXES

Oceanic reflexes of reconstructed flora terms are at times problematic in their geographical distribution. In many cases, especially where there are single reconstructions, as with POC **tupa*, 'fish poison plant, *Derris* sp.', or POC **dada*, 'coral tree, *Erythrina indica*', the reflexes are almost universal throughout Melanesia. With others, especially items which have less economic importance, the distribution of reflexes often patterns quite irregularly.

Of more interest perhaps is the distributional pattern where competing reconstructions are involved. For present purposes a single pair will suffice to make the point. In Vanuatu, for example, there are reflexes of two POC reconstructions **qupi* and **CamV* 'yam'. Reflexes of **CamV* cover a geographically continuous area in the north and centre of the country, while reflexes of **qupi* are restricted to the south-central area, setting up a kind of complementary distribution (Tryon 1976b). It has also been observed that the area in which one finds reflexes of **qupi*, also has a quinary numeral system with approximately the same geographical range. This suggests first of all that borrowing is a ready source of competing or multiple forms in a single region. It suggests something more, perhaps, namely that not just a single borrowing takes place at a time, but that cultural incursions, such as the Polynesian incursions in southern Vanuatu, may bring with them lexical packages, so to speak, where multiple lexical replacement may take place.

Tryon, D. "Oceanic plant names". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*.
C-127:481-510. Pacific Linguistics, The Australian National University, 1994. DOI *10.15144/PL-C127.481*

THE PLACE OF PLANT NAMES IN RECONSTRUCTING PROTO AUSTRONESIAN

JOHN U. WOLFF

1. INTRODUCTION

There are something like 175 plant names which have been proposed at one time or another to have originated in the Proto Austronesian language (PAN). Scholars have been at a loss as to how to handle these forms, for like the rest of the PAN vocabulary, or perhaps even more so, plant terminology is full of mysterious contradictions and what Dempwolff called *Lautunstimmigkeiten und Nebenformen* – that is, phonological irregularities and alternative reconstructions. To further our understanding of PAN what is urgently needed at this point is to bring order into this chaos. The problem has been not the failure to recognise similar forms as descendants of PAN, but rather the failure to distinguish those forms that can reasonably be reconstructed from those forms which by no stretch of the imagination could be attributable to PAN. What I would like to do in this paper is to enunciate some principles or better approaches which seem to me grounded in common sense and our own experience in the everyday world, principles which take as their point of departure the view that the history of words can only be understood in terms of the cultural milieu in which they are embedded or their functioning in the society which uses them. These principles can give us some clue as to how to approach this mass of confusing data. I believe that if we lay these ideas out on the table and then examine the forms individually, asking the questions which these principles lead us to ask, the confusion will clear up and a reasonably neat and clear picture will emerge. In this way we will have shorter lists: (1) of forms which definitely can be attributed to PAN, which are marked with a single asterisk in this paper; (2) of forms which might be attributed to PAN, though definitive proof is lacking (also marked with a single asterisk); (3) of forms which are attributable to a subgroup, but for which there is no evidence that they go back to PAN, which are marked with a double asterisk; and finally, (4) of forms which cannot be attributed to any protolanguage and which clearly spread through their range secondarily, which are placed in square brackets.

1.1 TRANSCRIPTIONS

I reconstruct a simpler phonology for PAN than is normally done (Wolff 1988, 1991, 1993). The following chart shows the symbols for the consonants which I reconstruct compared with those commonly used to represent PAN phonemes:

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 511-540.
Pacific Linguistics, C-127, 1994.

Wolff's transcription	Traditional transcription	Wolff's transcription	Traditional transcription
p	*p*	*ɣ*	*R*
t	*C,t*[1]	*m*	*m*
k	*k*	*n*	*n*
none	*T,c*	*ñ*	*ñ*
q	*q*	*ŋ*	*ŋ*
b	*b*	*ñ*	*N*
none	*d*	*l*	*l*
d	*D*	none	*r*
j	*Z*	*ʃ*	*s*
none	*z*	*s*	*S*
g	*j*	*w*	*w*
none	*g*	*y*	*y*

1.2 PRINCIPLES

The first consideration is that in the case of things in the real world, only those that attract the attention of the speakers are likely to get names. In the case of plants, only those get names that are cultivated or if they are wild, there must be something special about them (they are widely used for food or for producing things or they have an important ritual role, or the like). Thus, when people come into contact with new plants either through introduction or by moving to a new place, those new attention-getting plants are given names – by borrowing the name from others who know it already, or by calling the plant by a name familiar from other contexts, or by providing a descriptive name. Thus, when my family came to Florida from Germany, we found all sorts of new plants in our yard which had to be named. Most of these plant names we learned from the community which had also learned the name secondarily. Learning of new names gives rise to folk etymology or what I call the 'ponsietta syndrome'. By this process the learner guesses at the phonology of the new name and often changes it to make it similar to something familiar. This gives rise to all sorts of variations in the name. For example, I do not recall ever having heard the correct version of the name, which I have since learned should be *poinsettia*. They called it *ponsetta*, *ponsettia*, and my favourite, *ponsietta* (*ponsietta* was so called on analogy with another tree name people only learned in Florida, the *poinciana*). In short, our first principle is that folk etymology is normal in names which a community has newly learned. The converse of this is that if a plant name is widely spread and shows little sound irregularity, the chances are good that it is an inherited name, not something which has been borrowed.

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[1] The PAN pairs of phonemes **C* and **t* and also **N* and **ñ* are in complementary distribution. Further, the phonemes symbolised **T*, **c*, **d*, **r*, **z* and **g* are not reconstructable for PAN. Where I have listed forms with these letters, they refer to forms which I do not believe can be reconstructed for PAN. These phonemes are discussed in the articles listed under my name in the bibliography.

Secondly, in my experience in Florida, we took plants names that were familiar and applied them to plants we had to refer to. I remember that our neighbourhood had a lot of *Leucaena glauca*, trees that are called *ipil-ipil* in the Philippines. We children called them 'puff-ball trees' because their inflorescence looked like little powder puffs, but I remember that one of my more knowledgeable playmates informed us that the real name of this tree was 'locust' on the authority of his mother. Although upon close examination the *ipil-ipil* does not resemble a locust, there is enough by way of pinnate leaves and long beans to remind one of the locust trees of the north-eastern United States, the place of origin of my friend's mother. My grandmother who prided herself on the purity and accuracy of her German, found a German word for everything she came into contact with. The *Melaleuca* tree in our neighbour's yard she called *eine Bircke* 'birch'. To apply this example to our study of the reconstruction of plant names: by this token we frequently find the same name given to trees which are similar. Of course, the decision about which is the original referent and which is the new referent depends on knowledge of the history and distribution of the plant in question.

The new plant does not have to resemble the old plant in the least for an old name to be spread to a new plant. We had a bush in our yard that produced sweet-smelling flowers which my mother called a jasmine, a flower which she had read about but which she had never experienced. It was only many years later that I learned that the jasmine was an entirely different plant from the one in our yard. This explains how we can find the same name for plants which have absolutely nothing to do with each other. For example, in our data we have reflexes in various places in Indonesia and the Philippines for a form which we might reconstruct as ***qanasaw* (although it is not really possible to ascribe this form to PAN). However, in the Philippines and adjoining languages of northern Sulawesi, this plant refers to the fan-tail palm, *Livistona* sp., whereas elsewhere, the name refers to the sugar palm, *Arenga pinnata* (Malay *enau*, etc.).

As my example of the *Leucaena glauca* which we children called 'puff-ball trees' illustrates, a descriptive name which one can etymologise is one given to a plant that has been newly learned about. Thus, the *[kamuniŋ]*, *Murraya paniculata*,[2] is named after the yellow quality of the wood it yields, from Malay *kuning* 'yellow'.[3] Words which resemble this name are widespread throughout Indonesia and the Philippines, but it is obviously a Malay term, and originates as a descriptive term. Similarly *[kamaŋi]*, the name for sweet basil, *Ocimum sanctum*, surely contains the Javanese root *wangi* 'smelling good' and is descriptive. We do not have as many citations for this name as for *[kamuniŋ]*, and the same argument can be made: these names are borrowings from a descriptive Javanese name.

If a plant is introduced from the Americas there is prima facie evidence for ruling its name out as a PAN inheritance. Of course, by the principle that old names can be applied to new plants, it is not impossible that an inherited PAN word should be applied to a New World plant, but this only happens when the name also applies to an Old World plant. Thus the various versions of the form *bayem*, the *Amaranthus*, which are found in Indonesia and the Philippines, cannot possibly be inherited forms because the name does not refer to anything but this plant. My argumentation is confirmed by the fact that the names for this plant show

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2 The Latin names follow Burkill (1966).

3 As K.A. Adelaar pointed out during the conference, the form *kuning* itself is not inherited in Malay. The word for 'yellow' comes from the name for the plant *Curcuma longa*, which is inherited (not from PAN in all likelihood) as *kuñit* in Malay. *Kuning* itself probably comes from one of the Batak languages which reflects final **g* as *-ŋ* (Karo Batak).

all sorts of phonemic irregularities. On the other hand the name ***baŋkuwaŋ* can be ascribed to the protolanguage of a low-order subgroup of western Indonesian and Philippine languages, and it originally referred to a species of pandanus. In Malay, Javanese, Sundanese, Makassarese and some of the Minahassan languages the reflex of this form refers to the *Pachyrrhizus erosus*, a kind of tuber similar to a mild white radish, known in the Philippines as *singkamas*. *Pachyrrhizus erosus* is a native of the Americas, and a name for it in Mexico is *sengkuwang*. Obviously, this plant and its name was introduced somewhere in Nusantara and quickly was folk-etymologised to *baŋkuwaŋ*, with which name it was spread. In this case the name *baŋkuwaŋ* can nevertheless be ascribed to the protolanguage of a Philippine-Indonesian subgroup because we have *baŋkuwaŋ* in languages of this subgroup referring to a species of pandanus (including some of those languages that apply the name also to the *Pachyrrhizus erosus*).

2. FORMS WHICH CAN BE ASCRIBED TO PAN WITH CERTAINTY

Although more than half of the plant names which are listed in our sources are of secondary origin (resemble each other by virtue of spread), we are by no means at a loss as to how to distinguish these secondary forms from the primary ones which resemble each other by virtue of inheritance from PAN. We obviously cannot make decisions blindly, but when three conditions are met, we can say that we are dealing with a form which is ascribable to PAN. Firstly, the attestation covers a wide area. This is not always easy to establish. Our information on the languages of Formosa is spotty – too many of the languages have died out, and for the living languages detailed accounts of plant names are not available. Many of the languages of eastern Indonesia offer similar problems. Further, by the nature of the plant distribution in eastern Oceania, eastern Oceanic plant names with a PAN etymology are limited. Also we do not have a great deal of data on plant names in western Oceania. In short, we have names for a large number of plants only in the languages of Indonesia and the Philippines, where the languages clearly underwent strong mutual influence. In other words, this first condition is not easy to meet. A second condition is that the correspondences are regular. Thirdly, the reference is to a plant of a sort of which it makes sense to say that it was a plant that the community named throughout its history.

Obviously these criteria are too strict to apply across the board literally with no exceptions. Almost all of these forms have reflexes somewhere which show phonemic irregularities. Further, for many of the plant names which can be attributed to PAN, there are substantial groups of languages which do not show reflexes. I will argue shortly that the scattered nature of the attestation and the regularity of correspondence is a very strong indication of inheritence from PAN. In any case, the following forms are as certain in their reconstruction as anything in the PAN lexicon. Although there may be irregularities in a few of the attested forms, the general pattern is one of little irregularity and the spread is over the widest reaches of the Austronesian group. The most important of the cultivated plants are in this group of plants. Firstly, there are the food crops. There are three words for rice: one referring to the grain **beyás*, a second referring to the plant **págey*,[4] and a third being the general word for rice, **semáy* or **seméy*. We consider **seméy* to be PAN, but it is not as well attested as the other two words and we will take it up shortly. Other food plants are: the

[4] It is questionable whether rice predates PAN. The words for rice were either borrowed in PAN times or they were such early borrowings that they show no irregular phonemic correspondences. The form **beyas* has numerous cogenitors outside the Austronesian group (including the English word 'rice' itself).

grain, millet, **betéŋ*, *Panicum viride*, and the root crops: the taro, *Colocasia esculenta*, **tales*; the yam, *Dioscorea alata*, **qúbi*; the *Alocasia* spp., **bíɣaq*. Also in this group is the grain, Job's-tears, *Coix lachryma-jobi*, **qajelay*, which is now not an important food crop in Southeast Asia except in a couple of widely scattered places but is thought in former times to have been an important grain crop.[5] Job's-tears, *Coix lachryma-jobi*, lost its importance as a foodstuff over the last millennium, and as a minor plant its name got lost, changed, borrowed and so forth in many languages. However, we can reconstruct PAN **qajelay*, for its name, reference and phonology remained stable in enough languages from scattered locations that we can be certain that the name is inherited from PAN in them.

Also some of the basic fruit trees have a PAN etymology: the banana, **puti*; the coconut, *Cocos nucifera*, **niyuɣ*; the mango, **pásuq*. Possibly sugarcane, **tebús*, was cultivated. In any case its name is certainly ascribable to PAN. We also have reflexes in many languages of the name for the betel nut, *Areca catechu*, **buwaq*. We can reconstruct the form **buwaq* in PAN, but its reference to the betel plant is limited to a certain area. In widespread areas from Formosa to Polynesia reflexes of **buwaq* are the general term for fruit, and this is the meaning which we must reconstruct for PAN. The reference to betel nut is confined to Nusantara and the Philippines, and the history must be that in one language the general reference 'fruit' was specifically applied to the betel nut, the fruit par excellence, and then this development spread. Interestingly enough, in Cebuano the word for fruit, *búŋa*, which is from a word which originally had meant flower, has also come to refer to the betel nut.

There are also names for plants that were not grown but which yield important products. We can say these were inheritances from PAN: **túba*, *Derris elliptica*, used as a fish poison (incidentally, in the Philippines the name is transferred to a tree which furnishes fish poison); bamboos, **qawuɣ* and **búluq*;[6] rattan, *Calamus* and *Daemonorops* spp., **qúweɣ* or **qúway*. Another group consists of plants which were important mainly because they were prominent. Although some of these also yield products which the society used, the prime reason they seem to have survived in such a broad range of languages is that they referred to things that were a prominent part of the landscape everywhere. Almost all of these are trees of the seashore: the Australian pine, *Casuarina equesetifolia*, **qaɣúsuq* or possibly **qaɣusúq*; *Hibiscus tiliaceus*, **báyu*; the *Calophyllum inophyllum*, **bitáquɣ* or **bitaŋquɣ*; the *Barringtonia asiatica*, **butún*; the *Pandanus*, **paŋudañ*; the catapang tree, *Terminalia* spp., **talíʃay*; and a seashore tree, the *Dolichandrone spathacea*, **tewí*. I would also put in this group the mangrove, *Ceriops* spp., **teŋéɣ*, a name which is found from Malaysia and the Philippines to Oceania. However, the plant produces a bark which is of commercial importance, and in southern Sulawesi the word is clearly a borrowing, not inherited.

Three other tree names are clearly inherited from PAN. Although they are not seashore trees, they are found in forests close to the seashore and have attention-getting characteristics. The first is the *Erythrina* sp., **dapdap*, with its showy inflorescence. The second is the stinging nettle tree, *Laportea* sp., **jalateŋ*. The third of these is the banyan, *Ficus benjamina*, **nunúk*. This tree was and still is considered a sacred tree, the habitation of supernatural beings. Although the name for this tree has been replaced by others in most of the Philippines and in western Indonesia, the name survives in scattered languages in the

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5 James Fox pointed out at the conference that the use of this plant in rituals in many places in Southeast Asia attests to its antiquity, as opposed to sorghum, which has been introduced in comparatively recent times and is now widely grown, but is not part of the ritual.

6 **Búluq* was probably a generic term for bamboos and thus this word must be considered in a different light from plant names.

Philippines and in Indonesia, and we can almost be certain that the new names for the *Ficus benjamina* are replacements for the earlier **nunúk*. For example, in Aklan the name survives and refers to a tree with supernatural connections. In Sundanese *nunuk* survives but it means 'supernatural spirit'. Tagalog has the word *núnu?* 'supernatural spirit', but the phonology (final *-?* instead of the expected *-k*) indicates that this word is a borrowing in Tagalog. A similar argument can be made for the name for saw grass, the *Imperata cylindrica*, **ɣiq*. This plant has few uses but is so much a part of the everyday experience that we would expect to find reflexes of a name inherited from PAN. We have reflexes of **ɣiq* from southern Formosa throughout Nusantara including the Lesser Sunda Islands, with much of Indonesia and the Philippines showing gaps. Because it is a monosyllabic root there are numerous phonological irregularities, but I believe that these can readily be explained as adaptations of the monosyllabic root to the canonical shape of the root.

The words for rice are clearly inherited from PAN, but only the word for husked rice, **beɣás*, is nearly universal in languages spoken in areas which produce rice. The word for the rice plant **págey* has been replaced in many areas by **semé́y* or **semáy* which seems to have been the general word for 'rice as food'. In some languages a word meaning 'cooked staple' (e.g. PAN **inapey* or some other word consisting of the infix **-in-* and another root) replaced **semé́y* 'rice as food', and then **semé́y* came to mean 'rice plant'. The situation can be explained as follows: PAN speakers grew rice. When the Austronesian languages were brought to areas where rice was not produced (or spread to non-rice-growing populations), these words were lost, but as the populations learned about rice, these words were borrowed back, but the general word for rice, **semáy*, was taken over for the plant instead of the original **págey*.

Even the names which are inherited in most languages show signs of being secondary in some of the languages by having phonological irregularities. For example, the *Barringtonia asiatica*, **butún* in the languages of the southern Philippines and northern Sulawesi, receives an /i/ in the first syllable – **bitun*. We say this is an innovation because of the distribution of the phenomenon. In Cebu this name then gets folk-etymologised as *bitúqun* 'star', presumably because of its sharply angled fruit which resembles a star. Another example is **náɣa*, the *Pterocarpus indicus*, which is reconstructable for a fairly high-order subgroup if not for PAN. Yet many of the attestations show phonemic irregularities. Bikol, for example, shows *nára* with an /r/, clearly an introduced form. However, in the placename *Nága*, the regular reflex occurs.

To the above list of PAN reconstructions which are certain we can add others which show phonemic regularity in most of the attestations and in fact are assignable to PAN, even though in fact they are found in only a small number of languages. It is the scattered nature of the attestation and the regularity of the correspondences which argue for the antiquity of the form and the reference. The argument is that if they were spread by borrowing they would be attested in adjacent languages. One example is the word for rice, **semáy*, discussed above, but which in fact is attested in only scattered languages in southern Formosa, the Philippines and in Batak. Another example is the word for *Donax canniformis*, an important plant for providing cane for wickerwork and the like. This is reconstructed as **niniq*, and we assign it to PAN even though it is found only in the Batanic languages of the northern Philippines and then again in languages of eastern Indonesia and Oceania. In much of the area between we find reflexes of **banban*, again not all in contiguous areas – the name **banban* itself is broken by other names (see section 3). Another example is the name for the banana. The inherited name for the banana is found only in isolated places in western

Indonesia and not at all in the Philippines, but it is surely inherited, for we do find it in isolated places in the west (including Old Javanese). In eastern Indonesia and most points further east **puti* is almost universal. The best example of this principle is **qajelay*, 'Job's-tears', where many different facts independently show antiquity: scattered attestation, use of the plant for ritual, phonemic regularity in some of the scattered attestations.

The following four names are widely scattered, show no irregularities in their phonology and refer to plants which yield important products. We assign them to PAN: **anuliŋ* or **qanuliŋ*, **látuq* and **lukút*. The first, **anuliŋ*, is the *Pisonia alba*, for which we have citations in Hanonoo (the Philippines), Manggarai (Flores) and in Nggela (western South Pacific) only. The leaves of this plant are (or were) widely eaten; it is a widespread plant, sometimes cultivated, and the correspondences are regular in the three attestations. Verheijen (1984) cites names in other languages, the phonology of which is not always regular, but the irregularities can probably be explained. This looks like a plant that was important in former times, but which, like the Job's-tears, is now not often cultivated. **Látuq* is the name of an edible seaweed cited for Cebuano, Malay, and in eastern Indonesia in Roti and Yamdena. Again the correspondence and distribution argues for a retention from PAN. The plant is an important element of the diet in Cebu, but I have not seen it elsewhere in Southeast Asia.

The name **lukút* refers not to a single plant but rather to a class of growths, parasitic plants. The name is attested in southern Formosa, in Malay, Sundanese, Central Sulawesi and in Chamorro. Again the regularity of correspondence and similarity of reference together with the widely scattered distribution argue for inheritance, not secondary spread. This is not really a plant name but rather a generic term which may behave differently from names in its historical development.

Another name which is widespread is **qañuñaŋ*, the name of the *Cordia dichotoma*. There are two difficulties with assigning this name to PAN. Firstly, there are phonological irregularities in some of the languages. Secondly, there is no obvious reason why this tree should be prominent. However, the name is distributed from northern Formosa through Malay, Kalimantan, the Philippines and Sulawesi to the Lesser Sunda Islands, as far east as Timor.

There are quite a few plant names which are not as widely distributed as those just mentioned but which are distributed over a wide enough range that it certainly would make sense to reconstruct them for PAN. Again, many of the plant names show gaps in distribution, which argues that they are retentions. The following plant names are found throughout Nusantara, the Philippines, Sulawesi and the Lesser Sunda Islands, as far east as the Molucca Islands: **laqeya*, ginger, *Zingiber officinale*; **nípaq*, *Nipa fruticans*; **dítaq*, *Alstonia scholaris*. These certainly have the characteristics of plants, the names of which are likely to be inherited. They have a wide range of uses and grow in the lowlands near the sea. In fact **nípaq* is a palm of the seacoast swamps. The name for the ti plant, *Cordyline fruticosa*, **ʃiyi*, has reflexes found throughout Oceania as well as Sulawesi and possibly the Philippines and Madagascar. It is an important plant in the system of beliefs of many Austronesian language-speaking groups and is widely used for various purposes.

Finally, there is **katapaŋ*, a name ascribable to PAN, although its reference is unknown. In Sumatra, Java and southern Sulawesi the name refers to the *Terminalia catappa*. This must be an innovation and replaces the well-attested PAN **talíʃay*. There are various plant names

listed for reflexes of **katapaŋ* in Polynesia and the Philippines, and in Polynesia this name also refers to the frigatebird.[7]

2.1 NAMES ASSIGNABLE TO PAN WITH LESS CERTAINTY

Other plant names occur for the most part in contiguous areas. They are wide ranging but not as far flung as the names discussed above. They have the semantic character of inherited names (i.e. they refer to prominent plants). We can say they are strong candidates for assignment to PAN, even though there is a window of doubt. It is not impossible that they spread secondarily. The first is **amití*, *Solanum nigrum*. This name is found from northern Formosa to Sulu. The name appears also in Javanese and Malay, but it is clearly secondary there.[8] Although now an unimportant plant, it was formerly, like the Job's-tears, an important item of food. This hypothesis is supported by the Ivatan and Rukai dialectal name for the *Solanum nigrum*, **ñateŋ*, which etymologically means 'vegetable'. In Ivatan or some language in the area the *Solanum nigrum* was the vegetable par excellence.

Two other possible candidates for PAN inheritances are **daqú* and **kawáyan*. The name **daqú* is spread from southern Formosa through the Philippines to Java and also reappears in the Lesser Sunda Islands, southern Sulawesi, the Molucca Islands, and as far east as New Britain. The name is also found in Malay and Batak, but there it is clearly a borrowing. It refers to the *Dracontomelum* spp. but in Formosa refers to the soapberry tree which produces the *klerek*, the *Sapindus mukorossi*.[9] The *Dracontomelum* produces good fruit, and this supports the notion that the plant was important. These reflexes are regular in the sound correspondences, and we can reconstruct **daqú*, but the fact that it is distributed in adjacent languages opens the doubt that this is secondary. Incidentally, the same name with the same reference is found in non-Austronesian languages of eastern Indonesia and Papua New Guinea. The form **kawáyan* is attested in Formosa and the Philippines and one language of Buru. This must have PAN origins because the appearance in Buru is unexplainable otherwise. Incidentally Blust (1980a) believes that this form contains the root **qúway* which we reconstruct for PAN with great confidence. A root with a similar distribution to **kawáyan* and **daqú* is **pulút* which refers specifically to the *Urena lobata*, a tree which provides bird lime. In many languages it refers to many other mucilaginous plants. This name is descriptive and is derived from the root **pulút* 'sticky, glued' which we may reconstruct for PAN. The reference to the *Urena lobata* stretches from northern Formosa to Manggarai in Flores with gaps. This distribution of attestation may be a happenstance of our information (for the plant is not often listed), but there is a possibility that this plant name goes back at least to the protolanguage of the subgroup which contains both Formosan languages and Manggarai. I do not believe that this was PAN.

A name which is poorly attested but yet may possibly be assigned to PAN is **jabi*, *Ficus* spp. This name is attested only in Toba Batak *jabi-jabi*, Malay *jawi-jawi*, Malagasy (Betseleo dialect) *zavi* and Fijian *savirewa*. These forms all refer to a banyan or *Ficus* variety. If the

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7 Bruce Biggs and Ross Clark during the precedings of the conference pointed out the visual similarity between the frigatebird and the *Terminalia*.

8 Both Javanese *ranti* and Malay *meranti* have been reshaped by the same analogy and very likely the Javanese is a borrowing from Malay or vice versa.

9 The fact that the name has been applied to a new plant in Formosa argues for its antiquity. When the Austronesian languages spread to Formosa (I do not believe that Formosa was the homeland of PAN), the names for tropical plants not found in Formosa were applied to new plants.

Fijian form is not coincidentally similar to the others, this is indeed an inheritance from PAN.[10]

The word for *Citrus*, **muntay*, can be assigned to PAN with fairly good probability though by no means certainty, on similar grounds of scattered distribution. Reflexes are found in languages of Mindanao and Sulawesi, as well as the Lesser Sunda and Molucca Islands as far east as Ceram. This is a well-defined area of contiguous languages, but there are also attestations in outliers. What seems to be an inherited reflex occurs in the language of Mentawai, off western Sumatra. We also find versions of **muntay* in Achinese and Balinese, but they are irregular in phonology and it is quite certain that these are loan forms in these languages. However, the reflexes of **muntay* must have been more widespread in earlier versions of languages with which Achinese and Balinese came into contact. The following name is found from northern Formosa through the Philippines and Indonesia, but the reference in Formosa is to a *Miscanthus* grass, whereas elsewhere the name refers to a fern: **qaɣiʃam*, a fern, *Gleichenia* sp.[11]

These words are good candidates as PAN reflexes. To be sure, there is a window of doubt, and as illustrated by the example of sorghum (see *[batag]* below), data may be available to prove that the form in question is not PAN.

2.2 NAMES NOT ASCRIBABLE TO A PROTOLANGUAGE

However, when we have a name which shows irregularities in contiguous areas and is a commercial product, we are certainly not dealing with an inherited form. Thus *[bañaɣ]*, the name of the sarsaparilla plant, *Smilax* spp., which has important medicinal uses, has a distribution similar to the name of the *Solanum nigrum*, but surely it is not inherited because it is an important medicinal plant and the name shows widespread phonological irregularities.

Further, other plant names found in Formosa and further south which do not have as widespread a distribution as the languages above cannot be assigned to PAN or even to the protolanguage of a subgroup. An example of this is the name of the mulberry, *Morus acidosa*, which is cited as *[tañiuj/tañiud]*. This plant is an import from China and the name is only attested in Formosa and Itbayatan from the Batanes Straits, north of the Philippines. It would be perfectly silly to assign the reconstruction to PAN.

Another example is *[kamaya]*, which refers to the mabolo, *Diospyros discolor*, a name which is found from Formosa to as far south as Hanonoo in Mindoro. In fact, versions of this same name are found even further in the Philippines: *kamaguŋ* (spread throughout the Philippines) and *amága* in Cebuano.[12] Further, there is the name ***ʃáleŋ*, which refers to a forest product, dammar, rather than a plant. The name ***ʃáleŋ* is applied to various dammar-

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10 There are things about this form which arouse suspicion. Firstly, the form is reduplicated in Malay and Toba Batak. This is prima facie evidence that the name is descriptive and thus not original. Secondly, the Malagasy form does not show the normal reflex of PAN initial **j*.

11 Burkill (1966:1089) says this is a borrowing from an Arabic word meaning 'delineate', but I doubt it. The spread from Formosa through Indonesia and into the east makes this word very likely to be inherited. Because the name in Formosa refers to a different plant (*Miscanthus* grass) than it refers to elsewhere (*Gleichenia*, a kind of fern), I am uncertain as to what plant the name originally referred to. The connection is that both *Gleichenia* and *Miscanthus* have sturdy stems.

12 Blust (1980a) connects Cebuano *amága* with a name *mara* found in southern Celebes and in Malay. There is no semantic connection with the form in Malay (Burkill lists it as *marah*). The tree names in Celebes may indeed be connected, but it is clearly a matter of spread and not inheritance.

producing plants from Formosa to the Philippines. Here, the distribution does not allow us to attribute the form to PAN, although the form could be assigned to a protolanguage which includes the Philippines and Formosa, if indeed there is such a protolanguage. However, even though there are few if any phonemic irregularities in the attestations of this form, it is still highly likely, in view of the commercial importance of the product, that this form was spread by borrowing.

Finally, we should talk about the form *[batag]* 'sorghum', which is a plant introduced from the Middle East or somewhere west of Indonesia. Even though the name is spread from Atayal south throughout the Philippines and Nusantara, it has been spread secondarily. There are several facts which point to this: (1) the word is found in contiguous languages which do not form a subgroup (in this case a very large range); (2) the form does not reflect corresponding phonemes in important languages; and (3) the name does not refer to a plant that is ritually important anywhere.[13] The form **batag* may well be Proto Austronesian. However, we do not know what its reference is.

3. NAMES INHERITED FROM THE PROTOLANGUAGE OF A SUBGROUP IN WESTERN INDONESIA AND THE PHILIPPINES

There is another group of plant names which are widespread in the Philippines and Indonesia but which are not found east of Sulawesi. For those that show regularities of sound correspondence, there is good reason to reconstruct them for the protolanguage which includes the languages of Nusantara east of Sulawesi and the Philippines. I do not wish to say that all of these languages are in one subgroup, but certainly most of them are in a subgroup which is a lower order than PAN. (Let's call the group the Philippine-Western Indonesia group.) The following forms are in the Philippine-Western Indonesia group: ***bákuŋ*, *Crinum asiaticum*, a lily; ***báyuy*, *Pterospermum* spp., a timber tree;[14] ***buɣeney* or *beɣuney*, *Antidesma bunius*, a fruit tree; ***lámun*, *Enhalus acoroides*, a grass of salt swamps (this name is widely scattered); ***pakú*, an edible fern (Dempwolff thought there was a cognate of this word in Sa'a, but the semantics do not make sense). In this group we can also put ***náɣa* and ***nítuq*. The first, ***náɣa*, the *Pterocarpus indicus*, is a hardwood and has important reflexes throughout the Philippines and the Lesser Sunda Islands. As we pointed out above, the reflexes of ***náɣa* are not phonemically regular in all languages (hence borrowed, as one would expect for a plant of commercial importance), but there is a large enough number of regular reflexes that ***náɣa* is a good candidate for inheritance from a protolanguage of a subgroup. The second, ***nítuq*, *Lygodium* spp., a climbing fern, is attested for the Philippines and Lesser Sunda Islands. The reference in some languages is to other climbing plants. Other forms are the following: ***paŋi*, the *buah keluak* of Malaysia and Indonesia, *Pangium edule*; and finally, ***táɣum*, *Indigofera* spp., the indigo plant.

The following names are phonemically regular and are attested for languages ranging from Sumatra-Java-Kalimantan to the Philippines, but excluding Sulawesi: ***banban*, *Donax canniformis* (see section 2); and ***lampuyáŋ*, an old name applied to various ginger plants in the current languages. Perhaps it is a generic term for gingers. Other forms in this group are

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13 On sorghum in rituals see footnote 5. The fact that the Malay name *betari* has an extra /i/ at the end of the root, makes this name unique in Malay. It looks like a loan word from an Indic or Middle Eastern language, but I have not been able to find a confirming reference.

14 In Mongondow this name refers to the introduced tree, the sugar palm.

***pútat*, *Barringtonia* spp., trees of sandy seashores, mud flats and banks of slow-moving rivers (usually not applied to the *Barringtonia asiatica*, PAN **butún*); and ***qaɣa*, *Ficus* spp. Reflexes of this word are found in Formosa, Batak, Malay, Sangirese, and in Flores. It may be inherited from the protolanguage which is ancestral to these languages. The name also appears in Old Javanese, but with a phonemic irregularity, indication of a borrowing. Finally, there is ***baŋkuwaŋ*, which probably referred to a pandanus species, but in the Philippines the name refers to a reed which yields strips for weaving. As discussed in section 1, in Javanese, Malay and adjacent languages the name has been transferred to *Pachyrrhizus erosus*.

3.1 PLANT NAMES SPREAD THROUGHOUT THE PHILIPPINES AND INDONESIA WHICH ARE NOT INHERITED

The Philippines and western Indonesia is an area of mutually influencing languages. Malay especially has been influential as a lingua franca throughout the area for more than a millennium. This means that we have to take into account the cultural background of the plant. For example, there is the *Abrus precatorius* which has the name *sága* throughout Nusantara and the Philippines. This name shows no phonological deviation throughout other than the correspondence Philippines /g/ - Malay /g/ which I do not believe reflects a PAN phoneme. However, in this case it is not the phonemics, but our knowledge of the use of this bead in commercial transactions that makes it totally impossible for us to believe that this word is inherited. Burkill mentions that the word is from Arabic (I have not found it listed), but in any case we do not have a PAN word for the *Abrus precatorius*. Another example is the word for garlic, *[bawaŋ]*, which is spread through the Philippines and Java-Sumatra-southern Kalimantan. This surely is not inherited, as there are phonemic irregularities. Further, garlic is a recently introduced plant.

Morphological considerations can also play a role in deciding whether or not to assign a form to a protolanguage. For example, the form *[mali]*, the name of a shrub, *Leea* spp., is found throughout the Philippine-Western Indonesian language area with no phonemic irregularities. Yet we would not call it an inheritance, for in most languages the name is doubled or reduplicated: for example, Samar-Leyte *amamali*, Tagalog *mali-mali* and so forth. The reduplication indicates that the name is descriptive and therefore probably not inherited. Of course it is possible that the descriptive name developed in the protolanguage and has been inherited in the current languages.

There are many plants which, like the *Abrus precatorius*, *[ʃaga]*, have names that are irregular in their correspondences and which have a role in the economic life of the community. This makes it absolutely certain that their names are not inherited. The following plant names refer to vegetables, fruits and medicines which spread throughout Nusantara and into the Philippines. Almost all of them show irregularities in some or all of the languages: *[temu]*, *Curcuma* spp., a root used for medicine or spice; *[teruŋ]*, the eggplant; *[kundur]*, *Benincasa carifera*, a kind of squash; *[santul]*, *Sandoricum indicum/nervosum*, a fruit; *[jaraŋaw/jariŋaw]*, *Acorus calamus*, the sweet flag, a medicinal plant; *[pariya]*, *Momordica charantia*, the bitter melon, a vegetable; *[balimbiŋ]*, *Averrhoa bilimbi/carambola*, a fruit. In the case of this name it is only in the languages which reflect PAN **b* with another phoneme that we have any irregularity of correspondence, but these languages and the attestations in other languages which show analogical changes make it clear that this name spread by borrowing. I would put *[baŋkudu]*, *Morinda citrifolia*, which was important as a source of

red dye, in this group. Also in this group is *[laŋkuwas]*, the greater galangale, *Languas galanga*, a spice which has connected (but phonologically irregular) names throughout Indonesia and the Philippines. The name for the jack fruit, *Artocarpus heterophyllus*, *[naŋka]* should also be in this group. This name with phonological irregularities is spread through the Philippines and Indonesia as far east as Irian Jaya. The tree is of Indic origins. Finally, there is the vegetable *[kaŋkuŋ]*, *Ipomea reptans*. This is a widespread name that shows irregularities in a couple of languages of the Philippines. In this case, the shape of the root as well as the irregularities argue that this form spread by borrowing. We do not reconstruct any other root for PAN or for a subgroup which consists of a reduplicated monosyllable where the first syllable has /a/ and the second /u/.[15]

There are other introduced plants, which do not have the clear economic importance of the preceding, but nevertheless we take these names to have been spread by borrowing because of their phonological discrepancies. The first of these is *[ʃepaŋ]*, *Caesalpinia sappan*, the Brazilwood tree. Burkill thinks the name has something to do with the Sanskrit name *pattaŋa*. This name is found as far east as the Weda language in Halmahera. In this group is also the *Sterculia foetida*, *[kalumpaŋ]*. The reflexes of this name are fairly regular, but the distribution of the name leaves no doubt that it spread secondarily. It is not attested in Sumatra except in Toba Batak and in Malay. It is attested only for central and southern Sulawesi and the southern Philippines, not Kalimantan. Others in this group are: *[kesambi]*, the *Schleichera oleosa*, a name found in the Lesser Sunda Islands, Malay and Javanese with many irregularities; *[tudi]*, the *Sesbania grandiflora*, a tree grown to shade coffee plants, which must have spread secondarily as the attestations show great irregularities; and *[qanĭbuŋ]*, the *Oncosperma tigillaria*, a palm of coastal forests with a name showing irregularities. The name for the *Trema orientalis*, *[yeduŋ]*, is distributed from Puyuma in Formosa to the Lesser Sunda Islands, Java and northern Sulawesi. It shows irregularities everywhere, and despite its wide distribution is not reconstructable for the protolanguage. The name *[baluyu]*, *Entada phaseoloides*, the gogo vine, which was used as a shampoo, is distributed from the Philippines to Timor and is also attested for Sundanese. The great number of phonemic irregularities prove that this name has spread. The form *[báyu]*, *Gnetum gnemon*, is found with this reference only in the central and southern Philippines. (With the reference *Hibiscus tiliaceous* it can be reconstructed for PAN – see section 2.) This name also spread to Old Javanese, Makassarese and Malay, but with accreted final consonants. Finally, there is the name *[lagundi]*, *Vitex trifolia/negundo*, which is attested with phonemic irregularities in the Philippines, northern Sulawesi, and in various languages from Bali westwards.

Not all of the plant names in this group come from the west. The breadfruit, *Artocarpus communis*, ***kuluy*, is of Pacific origin. Its name spread throughout Indonesia and into the Philippines; however it displays numerous phonological discrepancies and cannot be an inheritance for that reason. The following names show various spreads from east to west: the

15 Many of the languages, however, show normal reflexes for this name, and in fact it is very widespread, found as far east as Eastern New Guinea and the Solomon Islands: for example, Tolai *kago* (M. Ross, pers.comm.). Only in Tolai does the form follow the sound laws, but in other places in the Solomon Islands where this word occurs, it does not have the sound correspondences of inherited forms (M. Ross, pers.comm.). There is another problem with the Tolai form: it shows an /o/ in the final syllable, and it is unknown what the reflex of PAN **u* is in the final closed syllable in Proto Oceanic. Therefore, it is most certainly the case that this word could have spread eastwards in recent times (probably through Pidgin English). This name is also found in languages outside the Austronesian group, for example, in Singhalese *kan kun*.

name *[ʃukun]* for the breadfruit, *Artocarpus communis*, is attested in languages of the Molucca Islands and in Javanese and Malay. It refers to the seedless varieties as opposed to words connected with ***kuluɣ*, which in these languages refers to the seeded varieties. The name for the lumber tree, *[kukun]*, *Schoutenia ovata*, is found in Java and the Lesser Sunda Islands. The name *[ʃuka]* for *Gnetum gnemon* is attested for Malay, Sundanese, the languages of Sulawesi and the Lesser Sunda Islands. The sagu palm, ***ɣumbiya*, *Metroxylon sagu*, also comes from the East, but the name is reconstructable for a subgroup which contains the languages of eastern Indonesia and Oceania, though not for PAN.

4. PLANT NAMES DISTRIBUTED OVER A SMALL AREA AND ASSIGNABLE TO A LOW-ORDER SUBGROUP

When we deal with plant names confined to a small area, it becomes more difficult to determine if the names are borrowed or inherited from a low-order protolanguage, for there tends to be less difference between the phonology of borrowed forms and inherited forms. Most scholars who reconstruct low-order subgroups assign to the protolanguage a form common to several languages if there is no countervailing phonological evidence. We can list a few such forms here. They are far too restricted in distribution to be assignable to PAN, yet they have the phonological shapes that correspond regularly as if they were inherited, and they are attested in languages for which it makes sense to say they are all members of the same subgroup. The following names belong in this group: ***ipil*, *Intsia bijuga/retusa*, a seacoast tree, with names attested for the Philippines, the Lesser Sunda Islands and Sulawesi; ***baksaw*, *Rhizophora* spp., a mangrove, attested for northern Sumatra, Malay, southern Sulawesi and the Philippines; ***tíkeɣ*, a name given to *Fimbristylis globulosa* and other reeds which produce fibre for mats. Their name is attested for the Philippines (only in Bisayan), northern Sulawesi, Malay and Malagasy. (In the latter two languages, the reflex refers to the product 'mat', but in a Malay dialect it also refers to a plant.) Also in this group is ***papa*, *Vitex pubescens*, the name of which is similarly distributed. There is also an attestation for the Numfor language in Irian Jaya, but this is probably a borrowing. The *Vitex pubsecens* is an important hardwood. In many of the languages which attest this name, there is a prefix with various shapes. Blust suggests that these pseudo-prefixes, which occur in terminology for flora, fauna and other sorts of terminology as well, can be explained as secondary developments within each of the individual languages, and the root is still inherited. This suggestion strikes me as reasonable. It is a common phenomenon in languages of the Philippines and Indonesia to have a certain stock of meaningless prefixes which reshape the first syllable or the first two syllables of trisyllabic or longer words referring to flora, fauna or other terminologies. The form ***qanásaw* is attested for Cebuano, Mongondow and Malay, but the reference is to quite different plants in the Philippines and northern Sulawesi than those in Malay. The name is also found in other languages, where it is clearly a borrowing from Malay. The name ***binuwaŋ* for the *Octomeles sumatrana* is attested in languages of Sumatra, Kalimantan and Sulawesi. This name also appears in Tagalog and Malay with very different reference. This name may in fact be inherited from the protolanguage of the Western-Indonesia-Philippine subgroup, but there are phonological irregularities in the first syllable. The name ***lambáyuŋ* is applied to several creepers and is found in the Philippines and Malay. Finally in the western languages, we have ***patuŋ*, the *Gigantochloa levis* or perhaps some other large bamboos, which is attested for Cebuano and Mongondow and various languages of southern and central Sulawesi. For eastern languages there is the form ***ɣumbiya*, referring to *Metroxylon sagu*, which is phonologically regular

there. The same name occurs in Nusantara and in a couple of languages of the Philippines, but there are phonological irregularities in some cases, which indicates that the form is a borrowing and not inherited.

5. OTHER SECONDARY PLANT NAMES

Some of the plant names are found in contiguous languages which cannot be considered to belong to a single subgroup. In these cases it is the very fact that the range of spread has nothing to do with subgrouping and further that the spread is over a contiguous area which argues that the form has been secondarily spread. Plant names in this group are: *[baŋa]*, *Orania palindum*, a palm (Philippines); and *Pandanus tectorius* (Sulawesi), attested from Mindoro south through Sulawesi. The following names have a similar distribution but are also attested in Flores: *[naŋa]*, *Calamus usitatus*, a kind of rattan; and *[puni]*, the name given to several genera of tree ferns. The latter also shows some irregularities of correspondence. A narrower distribution is shown by the following form: *[ʃabaqaŋ]*, *Cordyline fruticosa*. This name is attested for languages of northern Sulawesi, Kalimantan and Malay. The name *[baluŋuq]*,[16] which refers to a kind of mango, is attested only in coastal Kalimantan and Mindanao. The name *[telaŋ]* a kind of bamboo, is attested only in Kalimantan and southern Sulawesi. The name *[kabu] Ceiba pentandra*, the kapok, is that of an introduced plant and is attested in Sumatra and Sulawesi (cf. *[kapuk]*, below). The name *[kanaŋa]*, *Cananga odorata*, the ilang-ilang tree, is attested only in Java, southern Kalimantan, the Lesser Sunda Islands and southern Sulawesi.

Some of these areal names refer to plants that are distributed in eastern Indonesia and Oceania and started in the east: *[kanawa]*, *Cordia* spp., is attested for Ambon, Gilbertese, Nukuoro and Palau. There is also a citation for Makassarese, the reference of which is unknown, and Iban *kanawa* which is a kind of betel palm, a name which cannot be connected with the others. Similarly, ***laji* a poison-producing tree is attested for various western Oceanic languages. Blust also connects Kambera (Sumba) *lari* with this, but the reference of *lari* (also called *laru*) is to a very different kind of tree, and there probably is no connection. Other names have spread westwards in the same way as ***kuluy* (discussed in section 3.1). One such name is ***wai*, a kind of mango, the name of which is attested in western Oceanic languages and northern Sulawesi.[17]

Some of these words are attested only in languages in the group which is strongly influenced by Malay: Toba Batak, Javanese, Sundanese, Ngaju Dayak and Malagasy: *[medaŋ]*, a name given to various lauraceous trees. This name is also attested for Tawsug (Sulu, Philippines) where it refers to a local kind of *Artocarpus*, *Artocarpus odoratissima*. Other names: *[garuŋgaŋ]*, *Cratoxylon* sp., a forest tree; *[pinaŋ]*, *Areca catechu*, the betel tree; *[pisaŋ]*, the banana; and *[bariŋin]*, the *Ficus benjamina*.

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16 Blust (1980a) connects Paiwan *valuniq*, the fruit of the *Ficus wightiana*, with this name, but the lack of phonological correspondence makes the connection unlikely. Aside from that, the name must be assigned to a protolanguage because of the scattered nature of the attestation.

17 There are two attestations in Formosa: Tsou *suai* and Bunun *suai*, which could possibly be connected with these forms. However, as Blust (1986:112) points out, the resemblance is probably coincidental, and the forms in Tsou and Bunun could be explained as a borrowing from a Min dialect.

In fact it is also a fairly strong indication of secondary spread when the form is confined to the core languages influenced by Malay (the languages of Sumatra, Java, Borneo), as well as Bugis, Makassarese, Balinese and Sasak. In many of the cases there are some phonological irregularities which make inheritance from a protolanguage impossible. The name *[qambuluŋ]*, the sagu, *Metroxylon sagu*, is a name attested in Balinese as well as in the core languages; *[gelam]*, *Melaleuca leucadendron*, *[gaduŋ]*, *Dioscorea hispida*, and *[teleŋ]*, *Clitorea ternatea*, are attested for southern Sulawesi as well as the core languages. *Clitorea ternatea* is a plant of South American origin. The name *[galiŋgaŋ]* for the 'Acapulco' of the Philippines, a shrub introduced from the New World, *Cassia alata*, is attested for Sasak as well as the core languages. Some of the plant names do not show phonological irregularities, but the distribution and the history of the plant to which the name refers indicates without a doubt that the name is secondary. First of all, there is the name *[kapuk]*, for the *Ceiba pentandra*, the kapok tree, an introduced plant, which is attested in our core languages and in the southern Philippines, and finally, there is the word *[leŋá]* 'sesame' which is attested throughout Nusantara and the Philippines and shows complete regularity. The plant is an introduction from the Middle East.[18]

APPENDIX: LIST OF PLANTS[19]

[adámay] 'Pipturus argenteus'

CEB *handalámay 'Pipturus argenteus'*; Maranao *aramai 'Pipturus arborescens'*; Ngadha *zama* 'small tree with armorial bark'

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18 Dempwolff (1938:95) thought that the same name was also attested in Oceanic languages and quotes Tongan *enga* and Samoan *lenga* 'turmeric powder'. In fact these forms would reflect PAN **denga* (if such a form exists). They do not correspond phonologically to **lenga* in western languages.

19 A selected list of citations in the literature is given to provide an idea of the range of the names. The citations come from Heyne (1950) and De Clercq (1927) for Indonesia, and from Brown (1946) and Quisumbing (1951) for the Philippines. For the Formosan languages the citations come from Tsuchida (1976). POC forms are cited from Ross (1988), and Polynesian names from Biggs (n.d. – 1990 POLLEX printout used in this paper). Other language data come from Blust (1980a, 1983-84a, 1986). The language names are listed as cited in these references. De Clercq in some cases simply mentions the region. The transcriptions are given as I found them in the references with the following exceptions: in Indonesian languages *oe* is transcribed as *u*, *dj* as *j* and *tj* as *c*. For the Formosan languages I have made the following changes: Paiwan orthography follows Ferrell (1982), and other consonants cited with diacritics in the literature are transcribed with an *h* following the letter representing the consonant. For many of the languages cited it is not known precisely how they reflect the phonology of Proto Austronesian, and I have not indicated which forms show irregularities and which follow the rules of phonology. A final proof showing the forms which do follow the phonological rules will have to await the reconstruction of the Proto Austronesian vocabulary which I plan to finish in the next two years. The language abbreviations are as follows:

BAL	Balinese	MAK	Makassarese	PUY	Puyuma
BUG	Bugis	MAL	Malay	RUK	Rukai
CEB	Cebuano	MGG	Manggarai	SAA	Sa'a
FIJ	Fijian	MLG	Malagasy	SAM	Samoan
FUT	Futuna	NGD	Ngaju Dayak	SAR	Saaroa
HNO	Hanunoo	OJV	Old Javanese	SUN	Sundanese
ILK	Ilocano	PAI	Pawain	TAG	Tagalog
JAV	Javanese	PAL	Palauan	TBB	Toba Batak
KAN	Kanakanavu	POC	Proto Oceanic	TON	Tongan
KPP	Kapangpangan	PPN	Proto Polynesian	TSO	Tsou

[amaya] '*Diospyrus discolor*'
RUK *kamea* 'mango'; PAI *kamaya* 'mango or persimmon'; Amis, Itbayatan *kamaya*, HNO *kamayá*, CEB *amága* '*Diospyros discolor*'; MAL *mara keluang* '*Melanorrhea curtisii* (no connection)'; Tae *mara*, MAK *amara* 'sp. unidentified but produces black wood'

**amití* '*Solanum nigrum*'
KAN *namíci*, SAR *łamici*, TSO *mici*, PAI *samci*, Ifugao, Bontok *amti*, TAG *anti*, Sulu *muti*, MAL *terong mer-anti*, JAV *ranti*, OJV *ranti gunung*

[anabu] '*Abroma agusta*'
HNO, CEB *anabu*, PAL *lab*

**anuliŋ* '*Pisonia alba*'
HNO *anuling*, MGG *nuling*, Ngadha *nuli*

[aʃuntiŋ] '*Cassia* sp.'
CEB *asunting* '*Cassia alata*'; OJV *sunting* '*Cassia* sp.'

**báyu* '*Hibiscus tiliaceus*'
ILK, Bontoc, Tinggian *bágo*, TAG *balibágo*, Bima *vau*, NGD *baro*, MLG *baro/varo*, MAL *baru*, *pohon baguk*, OJV, Sasak, MAK *bagu*, FIJ *vau*, TON, FUT, SAM, *fau* '*Hibiscus tiliaceus*'; N. Sulawesi, TAG, CEB *bágu* '*Gnetum gnemon*'

***baksaw* '*Rhizophora* sp.'
CEB *bakhaw*, TAG, MAL, NGD *bakaw*, JAV *bako*, FIJ *mako*, TON *pako*, SAM *paʔo* (FIJ, TON, SAM trees not connected with this)

***bákuŋ* '*Crinum asiaticum*'
ILK, TAG, CEB *bákung*, MAK, BUG, JAV, MAL *bakung*, NGD *bakong*, MLG *vahuna*, TBB *bahung*

***baláw* 'k.o. forest product'
ILK *bálaw* '*Agathis philippinensis*'; CEB *baláw* '*Dipterocarpus grandiflorus/gracilis*'; MAL *balau* '*Shorea* sp.'

[balimbiŋ] '*Averrhoa bilimbi*'
TAG, Minahasa *balimbing*, Bima *limbi*, Achenese *limeng*, Batak *balingbing*, Nias *malimbi*, MAL *belimbing*, SUN *calingcing*, JAV, BAL *blimbing*

[baluyu] 'plant producing saponaceous material'
TAG *balúgu*, HNO *balugú*, Samar-Leyte *barúgo*, Central Philippines (TAG, CEB, Tagbanwa etc.) *gúgu*, Ponosakan *cariyu*, Timor *wiluru*, MAL *beluru* '*Entada phaseoloides* (also *Albizia saponaria* in some languages)'; ILK *balógo*, CEB *bayúgu* '*Anacardium occidentalis* (cashew)'

[baluŋuq] 'k.o. mango found in Mindanao, N. Kalimantan'
Maranao *balonoʔ*, Sangir *balunuʔ*, MAL (Brunei, Sarawak) *belunuh*

[bañay] '*Smilax* sp.'
Atayal *balag*, KAN *vanárə*, TSO *fkorə*, RUK (Maga) *bláa*, RUK (Mantauran) *vałau*, PAI *vała*, Bunun, Bontok *banal*, ILK *banag*, KPP *barag*, TAG *banág*, BUG *banar*, MAL *banau/banar*

***banban* '*Donax canniformis*'
ILK, TAG, CEB, Sulu *banban*, JAV, NGD *bamban*, MAL *bemban*, SUN *bangban*

[baŋa] 'k.o. palm'
HNO *banga*, Aklan *banga*, Maranao *banga*, MAK *banga* 'k.o. palm'; Tae '*Pandanus tectorius*'

[baŋkudu] '*Morinda citrifolia*'
TAG, CEB *bangkúro*, NGD *mangkudo*, JAV *kemudu*, MAL *bengkudu/mengkudu*

***baŋkuwaŋ* '*Pandanus* sp.'
TAG *bangkuang* '*Scirpus grossus*' (k.o. aquatic plant used in weaving); NGD *bangkuang* 'k.o. palm growth'; SUN *cangkuwang*, JAV *pandan kowang*, MLG *vakuana*, MAL *bengkuang/mengkuang*, Kubu *bengkuwang* '*Pandanus furcatus*'; TBB *bakkuwang*, JAV, SUN *bangkuwang*, MAL *bengkuang*, MAK *bangkowang* '*Pachyrrhizus erosus*'

[bariŋin] '*Ficus benjamina*'
JAV *waringin*, SUN *tjaringen*, MAL *beringin*, NGD *baringen*, TBB *baringin*

[batag] '*Sorghum vulgare*'
HNO, CEB *batád*, Maranao *bantad*, MAK *batara?*, MAL *betari* , Atayal *basag* 'millet'; Tetum *batar* 'maize'

[bawaŋ] 'garlic, onion'
TAG, JAV, MAL, NGD, *bawang*, TBB *baoang*

[bayaŋ] '*Amaranthus* sp.'
TAG *bayang-bayang* '*Amaranthus spinosus*'; MAL *bayam*, JAV *baem*, Molucca Is *bayang* '*Amaranthus* sp.'; TBB *beang-beang* 'k.o. plant'

***báyuɣ* '*Pterospermum* sp.'
Zambales, Pangasinan, TAG, Bikol, HNO, Sulu, *bayug*, Minahasa *wayu*, MAL, SUN, JAV *wayur/bayur* '*Pterospermum* sp.'; MAK *bañoro?* 'timber tree'; Mongondow *bayug* 'k.o. small sugar palm'

**beɣás* 'husked rice'
Atayal *boax*, Sediq *buwax*, KAN *vəəra*, TSO *ərsə*, RUK (Maga) *bəsəe*, Amis *velaa*, TAG *bigás*, JAV *wos*, NGD *behas*, MAL *beras*, TBB *boras* 'husked rice'; PAI *vat* 'seed'

[beŋkal] '*Nauclea* spp.'
Aklan, CEB, MGG, Iban *bangkal*, MAL *bengkal/mengkal*, MAK *bangkala?*

**betéŋ* '*Panicum viride* (millet)'
SAR *əbəcəngə*, RUK *bəcəngə*, BUG *beteng*, Roti *bètèk*, Buru *bétén*, Kai *botan*, Tanimbar *botan*

**bíɣaq* '*Alocasia* sp.'
RUK (Mantauran) *viʔa*, ILK, MAK, TBB *bira*, TAG, CEB *bígaq*, Bima *wia*, Kei *wir*, NGD *biha*, MLG *via*, Karo Batak *birah*, FIJ *via* '*Alocasia* sp.'; PUY *biraʔ* 'leaf'[20]

***binuwaŋ* 'k.o. tree'
TAG *binuang/banuang* '*Macaranga grandiflora/Endospermum peltatum*'; NGD, Karo Batak *banuang*, Minahasan *winuang* '*Octomeles* sp.'; MAL *benuang* '*Sterculia* sp.'

**bitá(ŋ)quɣ* '*Calophyllum inophyllum*'
ILK *bittáug*, CEB *bitáqug*, PAL *btaches*, MLG (provincial) *vintano* 'a tree'; MAL *bintangur*, TBB *bitangur*, Oceanic: Seimat *hita*, Loniu *pitow*, PPN **fetaʔu*

***buɣeneɣ/beɣuneɣ* '*Antidesma bunius*'
Bontok *bugnei*, Ibanag *vunnai*, TAG *bignay*, CEB *bugnay*, MAK, BUG *buʔné*, JAV *wuni*, MAL *berunai*, *buni*

**búluq* 'generic name for bamboo'
KAN *vulúʔu*, RUK(Maga) *búru*, Amis *vuluq*, PUY *vuruh*, TAG *búhoʔ*, CEB *búluʔ*, Mongondow *bulu*, MAK *bulo*, Kenyah, MAL, Karo Batak *buluh* 'bamboo; PAI *vuluq* 'spear'; SAM *polo* 'cut' (not connected)

[bunut] '*Pternandra coerulescens*'
NGD *bunot*, JAV *wunut*, MAL *bunut*[21]

**butún* '*Barringtonia asiatica*'
Ivatan *vutun*, TAG, Bik, JAV, MAL *butun*, NGD *buton*, Gorontalo *hutu*, BUG *butung*, Weda *keptun*, Minahasa *vitung*, MAL (Menadonese) *bitung*, Sangir, Philippines (various languages) *bitun*, CEB *bitún/bitúqun*, FIJ *vutu*, SAA *huu*, PPN **futu*

**buwaq* '*Areca cathecu*'
ILK *bóa*, Ibanag *búa*, BAL, Lampung *buwah*, Sasak *bua*, Roti *mbuwa*, Timor, Weda *pua*, Buru *fua*, Aru *buya*, N. New Guinea *bueh*, POC **buak* '*Areca*'; KAN *vuaʔe* 'orange'; PAI *vuaq* 'k.o. tuber'; PUY *buah*, MAL *buah* 'fruit'

**dapdap* '*Erythrina* sp.'
TAG *dapdap*, Roti *dela*, NGD *dadap*, JAV *dhadhap*, MAL *dedap*, TBB *dapdap*, Buli *ololaf*, FIJ *rara* '*Erythrina*'; PPN **lala* 'tree species'

**daqú* '*Dracontomelum edule*'
ILK *daó*, CEB *daqú*, MGG *saʔu*, SUN *dahu*, JAV *rau*, MAL *rau*, Simalungun *daʔu* '*Dracontomelum edule*'; KAN *caaʔu*, RUK (Tona) *daw*, PUY *dahu* '*Sapindus mukorossi*'; OJV *rahu* 'k.o. breadfruit'[22]

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20 Li (this volume) points out that the change in meaning from '*Alocasia*' to 'leaf' came from the common practice of using the *Alocasia* leaf for wrapping.

21 Blust (1980a) also quotes *bunut* as the name of a forest tree.

22 Zoetmulder (1982: 1481) says this is from Sanskrit *ḍahu*.

[deɣuŋ] see *[ɣeduŋ]*

***dítáq* '*Alstonia scholaris*'
ILK *diríta*, TAG *ditá?*, Maranao *dita?*, MGG *sita*, MAK *rita*, Bima *rida*, Ambon *rite*

[gaduŋ] '*Dioscorea hispida*'
MAK, MAL, Sasak *gadung*, JAV *gadhong*, OJV *gadhung*, TBB *gadong*, Tiruray *gadung belatung* 'mongo bean'

[galiŋgaŋ] '*Cassia alata*'
Baree *galingga*, Sasak, JAV, MAL *gelinggang*, NGD, TBB *galinggang*

[galugaq] '*Bixa orellana*'
Maranao *galoga?*, MAL *geluga* '*Bixa orellana*'; OJV *galuga* 'k.o. red dye'

[garuŋgaŋ] '*Cratoxylon* spp.'
NGD, TBB *garunggang*, MLG *harunggana*, MAL *geronggang*

[gelam] '*Melaleuca leucadendra*'
SUN, JAV, MAL *gelam*, NGD *galam*, Batak *inggolam*, MAK *baru gelang*, BUG *waru gelang*

[ɣeduŋ] '*Trema orientalis*'
PUY *rihnum*, ILK *aradon/pangaradángen*, Ibanag *agandung*, TAG *inugdung/inugdun*, CEB *hanagdung*, Sulu *alindagun*, JAV *anggrung*, MAL *mendarung*, Minang *bandorung*, TBB *landoyung*

**ɣiq* '*Imperata cylindrica*'
KAN *rəə ʔə*, TSO *vrio*, Bunun *liah*, Maranao *gi?*, Proto Sangir **əre*, Bare'e *le*, Tae *ria*, MAK *rea*, Roti *li*, MGG *riʔi*, Weda *ije*, SUN *eurih*, Karo Batak *rih*, Gayo *jih*

***ɣumbiya* '*Metroxylon sagu*'
CEB *lumbiyá*,[23] Tontemboan *rumbia*, Sausu (Central Sulawesi) *pun labia*, BUG *rumpia*, MAK *rumbia*, Ceram *ripia*, Ambon *laia*, *leia*, *ripia*, Aru *rabian*, NGD *hambiä*, MLG *rufia*, MAL, TBB *rumbia*, Motu *rabia*, POC **Rabia*

[ijuk] '*Arenga pinnata*'
TAG *irok*, CEB *ibyuk/idyuk* '*Arenga pinnata*'; MAL, TBB *ijuk* 'fibres from the *Arenga* palm'

***ipil* '*Intsia bijuga/retusa*'
TAG *ípil*, Bare'e *opili*, Gorontalo *ipilo*, N. Sulawesi *ipil*, BUG, Ende (Flores), Alor *ipi*, MAL *ipil* '*Intsia*'; To *ifi* '*Inocarpus edulis*'[24]

**jabi* '*Ficus* sp.'
MLG *zavi* '*Ficus trichopoda*'; TBB *jabi-jabi* '*Ficus rumphii*'; FIJ *savirewa* '*Ficus tinctoria*'

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23 In the Philippines this name is only attested in Cebuano and Bagobo.

24 Grace (1969) states that this name should be reconstructed as **qipil*, but I find no citations to back up this view. It is questionable that there is a connection between the name for *Intsea* sp. in the Philippines and Indonesia and the name for *Inocarpus* in the East. The plants have little in common.

**jalateŋ* '*Laportea* sp. (and other stinging trees)'
PUY *ringathen*, Ibanag *aldatang*, Igorot *adalateng*, TAG *lingátung*, MAK, BUG *lalatang*, Sasak *jelateng*, JAV *latong*, MAL *jelatang*, TBB *latong*, SAA *nunu-ao*, FIJ *salato*, PPN **salato*

[jaraŋaw/jariŋaw] '*Acorus calamus* (sweet flag)'
ILK *dálaw/dáraw*, Bontoc *déngaw*, Minahasa *karimenga*, Bare'e *kariyango*, MAK, BUG *karimanga*, JAV *dringo*, NGD *rangaw*, MAL *jeringau/jerangau*, MAL (Banjar) *riyangau*, FIJ *cago*[25]

[kabu] '*Ceiba pentandra*'
Mandar, MAL *kabu-kabu*, MGG *kawu*, TBB *habu-habu*

[kalumpaŋ] '*Sterculia foetida*'
CEB *kalumpang*, MAL *kelumpang*, Bare'e *kayumpang/kalumpang*, BUG *alumpang/alupang/kalupa*, MAK *kalumpang*, TBB *haluppang*

[kamaŋi] '*Ocimum sanctum*'
HNO *kamángi*, Sasak *kemangi*, MAL *selasih kemangi*

[kamaya] see *[amaya]*

[kamuniŋ] '*Murraya* sp.'
KPP, TAG, Bikol, CEB *kamúning*, Tonsawa *kamuni*, Bare'e *kamoni*, Buru *kamoné*, MAK *kamuning*, OJV, MAL, MGG *kemuning*

[kanaŋa] '*Cananga odorata*'
MAK, Bima, OJV, NGD *kananga*, MGG *kenanga*

[kanawa] '*Cordia* spp.'
PAL *keláw*, Ambon MAL, Gilbertese *kanawa*, Nukuoro *ganava* '*Cordia* spp.'; MAK *kanawa* 'k.o. tree'; Iban *kanawa* 'k.o. palm'

[kaŋkuŋ] '*Ipomea reptans*'
TAG, JAV, NGD, MAL, Molucca Is *kangkung*, ILK, CEB, *tangkung*

[kapuk] '*Ceiba pentandra*'
Sulu, JAV, MAL *kapuk*, NGD *kapok*

**katapaŋ* '*Terminalia catappa*'
MAK, JAV *katapang*, MLG *hatafana*, MAL *ketapang* '*Terminalia*'; Manobo *katapang* '*Garcinia vidalii*'; FUT *katafa* 'name of plant'; PPN **katafa* 'frigatebird'

[kaʃambiʔ] '*Schleichera oleosa*'
Roti *kusambi*, Sasak *kesambi?*, Kambera *kahambi*, JAV, MAL *kesambi*

**kawáyan* (cf. *qúwey*) 'generic name for bamboo'
RUK *kavadhanə*, PAI *kavayan*, PUY *kawayan*, Western Bukidnon Manobo *kewayan*, Buru *kawan*

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25 This Fijian form is listed by Dempwolff (1938:45), and he defines it at as 'turmeric', but I did not find it in any of my sources.

[kenduŋ] 'shrub or small tree'
ILK *kandóng* '*Memecylon ovatum/umbellatum*'; Iban *kendong* '*Garcina* spp.'; MAL *kendungan* '*Symplocos ferruginea*'

[kundur] '*Benincasa cerifera*'
TAG, CEB (and elsewhere in the Philippines) *kundul*, MAL *kundur*, TBB *gundur* '*Benincasa*'; MLG *hundru* 'pumpkin'

[kukun] '*Schoutenia ovata*'
MGG, Rembong *kukung*, SUN *harikukun*, OJV *halikukun/walikukun*, Madura *kokon*

***kuluɣ* '*Artocarpus communis*'
CEB *kulu*, Minahasa *kulub*, Mongondow *kulud*, MGG *kolo*, MAL *kulur/kalawi/keluwih*, JAV *keluwih*, POC **kuluɣ*, PPN **kulu*

[lagundi] '*Vitex trifolia/negundo*'
Ibanag, TAG, CEB *lagundi*, Minahasa *lagunde*, BAL *liligundi*, MAL *lenggundi*, Minang *silagundi*, Karo Batak *salagundi*

***laji* 'tree with poisonous sap'
PAL *ias* 'poison-producing tree from river banks'; Kambera *lari* 'tree from estuaries'; Kwaio *kailasi* 'poisonous tree'; Mota *las*, SAA *lasi* 'tree with juices causing sores'

***lambáyuŋ* '*Ipomea pes caprae*'
ILK, CEB *lambáyung*, Maranao *rambayong* '*Ipomea pes caprae*'; MAL *lembayung/rembayung* '*Eichomia crassipes* (water hyacynth)'; Minang *lambayung* '*Basella rubra*'

***lampuyáŋ* 'name given to various ginger plants in different languages'
TAG, CEB *lampuyáng* '*Zingiber serumbet*'; Panay *lampuyang* 'turmeric'; JAV, MAL *lempuyang* 'k.o. ginger plant'; NGD *lampuyang* 'k.o. ginger plant'

***lamún* '*Enhalus acoroides* (shallow water sea grass)'
TAG, Bikol *lamún*, JAV *jelamun*, MAL *lamun/jari ambon*, PAL *iaml* '*Limnophila aromatica* (k.o. swamp plant)'; MGG *lamung* 'aquatic moss'; Sasak *lamun* 'duckweed'

[laŋkuwas] '*Languas galanga*'
TAG, Aklan, Bisayan *langkawas*, Minahasa *lingkowas*, Gorontalo *lingkobato*, MAK *langkuasa*, Roti *langkuas*, Buru *languas*

**laqeya* '*Zingiber officinale*'
CEB *luyʔa*, Minahasa *liya/léya/ria*, Mongondow *luya*, MAK *laya*, Sikka *lia*, Bima *réya*, Sumba *aliya*, Wetar *lia*, Aru *laya*, BAL *lahya*, MAL *halia*, Lampung *lahia*

**látuq* 'k.o. edible seaweed'
CEB *látuʔ*, Roti, Yamdena *latu*, MAL *latuh*

[leŋá] '*Sesamum orientale*'
TAG *lingá*, CEB *lungá/langá*, OJV, MAL *lenga*, NGD *lengo*, TBB *longa*

[limau] '*Citrus*'
Portuguese *limaõ*, MAL, NGD *limau*, North Sulawesi, Central Sulawesi *limu/lemo*, BUG, Halmahera *lemo*

**lukút* 'k.o. parasitic plant'
RUK *ukucu*, PAI *rukuts*, PUY *rukuth* '*Asplenium nidus*'; Chamorro *lúluhot* '*Maytenus thomasonii*'; Uma *luku?* 'epiphyte'; Li?o *luku* 'tree with edible fruit' (not connected); SUN *lukut* 'duckweed, moss'; MAL *lukut* 'long moss (in contrast to lichen)'; MAL (Banjar) *lukut* 'parasite or creeper'; Iban *lukut* 'moss, lichen, algae'

[mali] '*Leea* spp.'
Tag, MKK, Minahasa *mali-mali*, Samar-Leyte, Panay *amamali*, MGG *mali*, MAL *mali-mali, memali*

[medaŋ] 'laurel'
NGD *madang*, TBB *modang*, MAL *medang* 'laurel'; Sulu *marang* '*Artocarpus odoratissima*' (not connected)

**muntay* '*Citrus*'
Maranao *montai*, Tirurai *muntey*, Subanun *muntay*, Minahasa *munté*, Mongondow *muntoi*, Uma *munte*, BUG *amunte*, Roti *munde*, Ceram *amusi*, MGG *munta*, BAL *jeruk muntis*, Mentawai *muntei*, Aceh *munteuy*

***náya* '*Pterocarpus indicus*'
ILK *narrá*, Bikol *nára* (in placename: *Nága*), CEB *nága*, Maranao, Tiruray *nara*, PAL *las*, Tonsea *naga*, Roti *na?a*, MGG, Bima *nara*, Solor *kenaha*, Motu *nara*, Gitua (New Guinea) *nara*[26]

[naŋa] 'k.o. rattan'
Dumagat (Luzon), Maranao, Mongondow, MGG *nanga*, Tiruray *nongo*, Sangir *ue nanga*

[naŋka] '*Artocarpus heterophyllus*'
TAG *langka?*, CEB *nangka?*, Mongondow, JAV, NGD, MAL *nangka*, Bare'e *nanaka*, Tetum *naka*, Weda, N.W. New Guinea *naka*

**niniq* '*Donax canniformis*'
Yami, Itbayatan *nini*, MGG, Rembong *nini?* '*Donax*'; Nggela, Lau *nini* 'k.o. bush yielding stems used in thatching'

**nípaq* '*Nipa fruticans*'
TAG, CEB *nípaq*, MAK, BUG, Bima, Sula *nipa*, NGD *ipah*, Karo Batak, Acheh, OJV *nipah*, Nias *nifa*

***nítuq* 'climbing vine – usually *Lygodium* sp.'
TAG *níto?* 'k.o. vine'; Bikol *níto?* 'black fern'; HNO *nítu?* 'climbing fern'; Rembong *nintu?* '*Lygodium circinnatum*'; Nagdha *nito* 'k.o. tree'; Ute (Ambon) *nitu* 'k.o. bamboo'

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26 Bikol, Maranao and Tiruray reflect PAN **ɣ* with /g/. The New Guinea names come from Geraghty (1990:66).

*ñiyuŋ '*Cocos nucifera*'
TAG *niyog*, Mandar (dialectal) *nyuh*, Roti *no*, Bima *niu*, NGD *eñoh*, MAL *ñiur*, TBB *niur*, Buru *niwel*, *niwə*, W. New Guinea *nu*, N.W. New Guinea *niweh*, *niu*, *nyunyuwə*, PPN **niu*

**nunúk* '*Ficus benjamina*' (dwelling of supernatural beings)
Aklan *nunók*, Maranao *nonok*, Tiruray, Bima, Maloh (Sarawak), Sangir *nunuk*, Uma *nunu?*, Roti, Raluana, Leti, FIJ *nunu*, '*Ficus*'; TAG *núnu?* 'goblin'; SUN *nunuk* 'k.o. ghost'

***paŋatpat* '*Sonneratia* sp.'
TAG, CEB *pagatpat*, MAK *parapa*, BUG *parepa*, MLG *farafala*,[27] MAL *perepat* '*Sonneratia*'; Ponosakan *poyopat* '*Rhizophora*'; TBB *parapat* 'k.o. bamboo'

**págey* 'rice plant'
Atayal *pagay*, TSO *pai*, Saisiat, Pazeh *pazay*, RUK *págai*, PAI *paday*, Amis *panay*, TAG *pálay*, Gorontalo *pale*, Bare'e *pae*, Mandar *pare*, JAV *pari*, NGD *parei*, MAL *padi* 'rice'; MLG *tsimparifari* 'wild rice'

***pakú* 'fern (esp. *Diplazium esculentum*)'
TAG *pakó*, CEB *pakú*, Minahasa, MAK, BUG, SUN, OJV, MAL *paku*, Tonsawa *pau*, 'fern'; MLG *faho* 'palm-like shrub that yields sagu, *Cycas circinales*'; SAA *he?u* 'k.o. tree'

**paŋudañ* '*Pandanus* spp.'
TAG, NGD, MAL, TBB *pandan*, CEB *pangdan*, Gorontalo *ponda*, MAK *pandang*, Weda *pondak*, JAV *pandhan*, MLG *fandrana*, FIJ *vadra* 'pandanus'; PPN **lala* 'pandanus mat'; Atayal *pangran*, RUK *pangudałə*, PAI *pungudał*, PUY *pangudhal* 'pineapple'

***paŋi* '*Pangium edule*'
Samar-Leyte, Panay, Maranao, Minahasa, Bare'e, MAK, BUG, MAL (Molucca Is), OJV, Dayak (S.E. Kalimantan), Dairi Batak *pangi*

***papa/pampa* '*Vitex pubescens*'
Bisayan *salingkápa*, Magindanao *kulimpapa*, Subanon, Sulu *kalipapa*, MGG *pampa* 'molave'; MAK *gulimpapa*, NGD *kalapapa* 'tree with hard wood'; Numfor *baf* '*Vitex cofassus*'

[paria/pariaq] '*Momordica charantia*'
Isneg, ILK, CEB *pariyá*, TAG *ampaláya*, Maranao, Uma *paria?*, Tiruray *feriya?*, Tae, MAK *paria*, Ceram *papari*, JAV *pare*, MAL *peria/pepare*

**pásuq* 'k.o. mango'
TAG, CEB *páhu?*, MGG *pau*, Roti *mpao*, Kai *faw*, JAV *poh*, MAL *pauh* 'mango'; FIJ *bau* '*Sapotaceae* sp.'

***patuŋ* 'k.o. large bamboo'
CEB, Mongondow, Tae *patung*, Bare'e *patu*, MAK *pattung*, BAL *petung*, MAL *petung* 'bamboo'; MAL *pematung* 'conduit'

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27 Quoted by Burkill (1966:2090).

*pulút '*Urena lobata*'
KAN *puucu*, PAI *puluts*, PUY *puruth*, Isinai *poot si nuang*, MGG *pulut* '*Urena*'; MAL *pulut-pulut* 'mucilaginous plants, esp. *Urena lobata*'; Kayan *pulut/pepulut* 'rubber tree'; Bikol *pulut* 'glued'; Samar-Leyte *pulut* 'sticky'

[puni] 'tree fern'
Maranao *poni*, Tombulu *apuné?*, Bare'e *ampuni*, Tae *puné*

**pútat '*Barringtonia* spp.'
TAG *pútat/pútad*, CEB *pútat*, OJV, JAV, NGD, MAL *putat* '*Barringtonia* spp.'; MLG *futatra* '*Butonica apiculata*'

*puti/punti 'banana'
Tonsea, Tontemboan, Bare'e, Lampung *punti*, MAK *unti*, BUG *uti*, OJV *puti*, Kalimantan *puti/pute/punti*, MLG *untsi*, Simalungun *pusi*, Komiai (S.W. New Guinea) *fun*, FIJ *fudi*, SAA *hutsi*, PPN **futi* 'banana'; MAL *buah punti* 'k.o. banana'; MLG *funtsi* 'traveller's palm'

**qaɣa '*Ficus* spp.'
Atayal *qaa?*, Atayal (Matabalay) *?aga?*,[28] Sangir *aha/ara*, Mongondow *aga*, Buru *ahat*, MGG, Ngdha, Sasak, Pakpak Batak *ara*, BAL *aha*, OJV *hara*, Iban *ara?*

*qaɣiʃam 'plant with strong stalk'
Bikol *agsam* '*Lygodium* sp. – a slender climbing fern'; Iban, MAL *resam* '*Gleichenia* sp.'; TBB *arsam* 'k.o. upright fern'; FIJ *caca* '*Acrostichum aureum*'; TSO *resmə*, Bunun (Ishbukun dialect) *xaslam*, Kavalan *qiisam* '*Miscanthus floridulus*'

*qaɣúsuq/qaɣusúq '*Casuarina equesetifolia*'
CEB *agúhu?*, TBB *aru*, MAL *eru*, Minang *haru*, FIJ *cau*, SAA *selu*

*qajelay '*Coix lachryma-jobi*'
CEB *aglay*, Tetum, Roti *dele*, SUN *hanjeli*, JAV *jali*, OJV *jaheli*, NGD *jeläi*, MAL *enjelai*

*qañuñaŋ '*Cordia dichotoma*'
KAN *?unúnangə*, TSO *həhngə*, RUK (Mantauran) *ułułangə*, PUY *ɬalulang*, Ibanag, ILK, TAG, Bikol, CEB *anúnang*, Minahasa *anonang, nanonang, nonang, kanonang*, Buol *anuanga*, MAK *kanunang*, MGG *nunang*, Roti *nunak*, Timor *tatasi nunang*, Dayak (S.E. Kalimantan), MAL *nunang*

[qambuluŋ] '*Metroxylon sagu*'
Bajo *ambulu*, Manobo *ambolong*, JAV, BAL *ambulung/rembulung*, Dayak *hambulung*

[qampelaʃ] 'tree the leaves of which are used to polish: *Delima scandens* or *Tetracera scandens*'
NGD *hampelas, tampelas*, MLG *ampoli*, JAV *rempelas*, MAL *hempelas/mempelas*, TBB *ampolas*, MGG *pelas* 'polish'

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28 These Atayal names were supplied by Paul Li (pers.comm.).

****qanásaw** '*Arenga pinnata*'

Buol *kanaw*, Bare'e *konau*, Bima *nao*, NGD *hanau*, MAL (Banjar Masin) *hanaw*, MAL *enau*, Simalur *anau* '*Arenga pinnata*'; CEB *anáhaw*, Mongondow *onow* '*Livistona* sp.'

****qanílaw** 'name for various tiliaceous trees'

Isneg, ILK *alinaw*, Kankanay *alin?ew*, TAG, Ceb, HNO *anílaw*, Tboli *kenilaw*, Minahasa, Roti *lino*, Tontemboan *mangilo*, MGG *nila*, Bima *rino* '*Grewia* and *Columbia* spp.'; MAL *nilau*, Batak *andilo* '*Commersonia bartramia*'

[qaníbuŋ] '*Oncosperma* spp.'

TAG *aníbung*, Tonsawa *ibung*, SUN *handiwung/liwung*, JAV *gendiwung*, MAL *enibung*, TBB *libung*, Lampung *hanibung* '*Oncosperma* spp.'; CEB *aníbung* '*Caryota* spp.'

***qawuŋ** '*Bambusa* spp.'

KAN *?aúru*, Saaroa *?auru*, TSO *oru*, PAI *qau*, Amis *qaul*, Bunun *haul*, Tontoli *auk*, Mongondow *aug*, BUG *awo*, Ende, Sumba, Solor *au*, Sikka *aur*, SUN *awi*, NGD, MAL *haur*, Batak *aor*, Sa'a *äu*

***qúbi** '*Dioscorea alata* (and other yams)'

TAG, CEB *úbi*, Roti *ufi*, SUN *huwi*, JAV, MLG *uwi*, NGD *owi*, MAL, TBB *ubi*, FIJ *uvi*, SAA *uhi*, POC **qupi*, PPN **qufi*

***qúway/qúwey** '*Calamus, Daemonorops*' (see also **kawáyan*)

Atayal *qwani?*, KAN *?uái*, TSO *?ue*, RUK *uvai*, PAI *quay*, Amis *quai*, TAG *úway*, Mongondow *uwoi*, BUG *uwe*, Roti *ué*, Alor *uwi*, S. Halmahera *woi*, Kai *oe*, N. New Guinea *wai*, SUN *howe*, NGD *uei*, MAL (Besemah) *uwe*, Acheh *awe*, Simalur *uwai*, SAA *ue* 'rattan'; SAM *uu* 'k.o. reed'

***semáy/seméy** '*Oryza sativa*'

Ibanag *ammai*, CEB *humáy*, Simalungun Batak *omé*, TBB *eme* '*Oryza*'; Amis *hemái*, Kuvalan *?mai*, PUY *sumai* 'cooked rice'

[ʃabaqaŋ] '*Cordyline* spp.'

Mongondow *taba?ang/toba?ang*, Bima, MAL *sawang*

[ʃaga] '*Abrus precatorius*'

HNO *ságа*, SUN, JAV, BAL, MAL, Karo Batak *saga*

****ʃáleŋ** 'a dammar-resin-producing tree'

Atayal *hayung*, KAN *salәngә*, TSO *srongә*, RUK (Maga) *srәngә*, PAI *taleng*, ILK *sáleng* 'pine'; CEB *sálung* '*Agathis philippinensis*'; TAG *sáhing*, CEB *sálong* 'dammar resin'

[ʃentul] '*Sandoricum koetjape*'

Isneg, TAG, Tiruray *santol*, MAK *sattulu?*, MAL *sentul*, Iban *situl*

[ʃepaŋ] '*Caesalpinia sappan*'

Ilg *sapáng*, MGG *cepang*, Sasak, MAL *sepang*

**ʃiɣi 'Cordyline fruticosa' ?*ʃiɣi
MAK, BUG *siri*, MLG *sily*, PAL *sis*, POC **jiRi*[29]

[ʃukun] 'Artocarpus communis'
Roti *suu*, Ceram *suun*, Nusa Laut *suuno*, JAV, MAL, Lampung *sukun*

[ʃuka] 'Gnetum gnemon'
Tontemboan, Bare'e *suka*, MGG *cuka*, Kei *huk*

**suwag 'Flagellaria indica'*
Samar-Leyte, CEB, Manobo *huwag*, Tonsawa *uwe ne angko*, Tombulo *uwe ne wale*, Ambon *ai wara*, MGG *kuar*, Sasak *oar/uar*, SUN *oar/huar*, JAV *wowo*

**táɣum 'Indigofera* sp.'
TAG *táyom*, CEB *tágum*, Minahasa *taum*, MAK *tarung*, Roti *tauk*, Timor *taum*, Sula, JAV *tom*, MGG *tao*, BAL, NGD *tahum*, SUN, MAL *tarum*, Lampung *talum/talom*, TBB *tayom*

**taleʃ 'Colocasia esculenta'*
Minhasa *talè*, JAV *tales*, MAL *talas*, Lampong *talos*, Angkola Batak *tale*, Nias *talo*, FIJ *dalo*, SAA *alo*, PPN **talo*

**talíʃay 'Terminalia* sp.'
KPP, TAG, CEB *talísay*, Minahasa *talisei*, Bare'e *talise*, Buru *lisa*, Sula *tasi*, Weda *klis*, W. New Guinea *kalis*, FIJ *dalici*, PPN **talie/talia*, Sa'a *älite*

[tañiud/tañiuj] 'mulberry'
KAN *tanúcu*, TSO *thzucu*, RUK *tliudhu*, Itbayatan *tañudh/tanud*

**taŋbuq ?[taŋbuq] 'Phragmites vulgaris'*
HNO *tangbu?* 'sucker of bamboo'; TAG *tambo?*, CEB *tangbu?* 'k.o. grass: *Phragmites vulgaris*'; MAL *tambuh* 'k.o. shrub: *Euthemis leucocarpa*'

**tebús* 'sugarcane'
TSO *tfəsəə*, RUK *cubusu*, PAI *tjevus*, TBB *tobu*, *tubó*, CEB *tubú*, JAV, MAL *tebu*, NGD *tewu*, FIJ *dovu*

**teɣáʃ* 'k.o. hardwood tree'[30]
SAA *eohu*, POC *toRas*,[31] Proto Central Pacific **toa*[32] '*Intsia bijuga*', PPN **toa* '*Casuarina* sp.'

[teleŋ] '*Clitorea ternatea*'
MAK, BUG *talang*, JAV *teleng*, MAL *telang*, TBB *tolong*

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29 The names *tigre* and *sigre* from various languages in the Philippines (the languages in which these names occur are not clearly stated in our sources) and the name *tigi* in Ibanag may be connected with this. However, these names refer to the *Cordyline roxburghiana*.

30 The root can be reconstructed for PAN, but not referring to a tree name.

31 Quoted by Biggs (n.d.).

32 Cited by Geraghty (1990).

[temu] '*Curcuma zedoaria*'

TAG *tamó*, MAK *tamu*, BUG, JAV, MAL *temu*, Bima *dumu*, MLG *tamu-tamu*, '*Curucuma*'; FIJ *damu-damu* 'red, brown, dun'; To *tamu-tamu* 'be red'[33]

**teŋeɣ* '*Ceriops* spp.'

TAG *tangal*, CEB *tungúg*, Samar-Leyte *tungúg/tungúd/tangág*, MAK *tangere*, BUG *tengere*, MAL *tengar*, TBB *tongor*, FIJ *dongo*, PPN **tongo* 'mangrove'

[teruŋ] '*Solanum melongena*'

TAG *tálong*, Ceram *tolun*, BAL *tehung*, JAV, Madura, Sasak, SUN, MAL *terung/terong*, TBB *torung*

**tewí* '*Dolichandrone spathacea*'

ILK *tuí*, TAG, CEB *tiwí*, Manobo *tewi*, MGG *tui*, MAL *daun tuwai* '*Dolichandrone*'; MAL *tui* '*Radermachera gigantea*'[34]; Gedaged, Yamdena, Roviana, Nggela *tui*, Nakanai *latiu* 'timber tree'

***tíkeɣ* 'plant used in making fine mats'

Cn *tíkug* '*Fimbristylis globulosa*'; Gorontalo *tihu*, Buol *tikagu*, Baree *tiu*, MLG *tsihi*, MAL *tikar* 'mat'; S. Sumatra *tiker* '*Lepironia mucronata* (used for mats)'

**tuba* '*Derris elliptica*' (and other species of *Derris* used to poison fish)

At *tatuba?*,[35] Ivatah *tuva*, MAK, BUG, SUN *tuwa*, Buru *tufa*, N.E. Halmahera *tupo*, JAV, MAL *tuba*, NGD *tuwe*, FIJ *tuva/nduva*, SAA *uhe* '*Derris*'; TAG *túba* '*Barringtonia acutangula*' (used to poison fish); CEB *túba* '*Croton tiglium* (used to poison fish)'; TBB *tuba* 'k.o. plant used to poison fish'

[tudi] '*Sesbania grandiflora*'

ILK *katoday*, TAG *katurai*, Maro *todiq*, Tiruray *tudi?*, Mongondow *suri*, MGG, Tetum, Alor, Weda, JAV, MAL *turi*, Madura *turoy*

***wai* 'mango' *?*wai*

Minahasa *uwai*, Sangir *uai*, Yotefa *wei*, *we*, Titan *weway*, Lenkaw *awey*, Motu *vaivai*

INDEX OF NAMES

LATIN NAMES

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33 The Tongan form is listed by Dempwolff (1938:130), but I have not found it. In any case the *a* in the penult of the Tongan root does not follow the sound laws.

34 Not listed by Burkill. This reference is from Wilkinson (1932, II:608).

35 I have this name from Li (this volume, #6).

Antidesma bunius	***buɣeney/beɣuney*
Areca cathecu	**buwaq*
Arenga pinnata	***qanásaw, [ijuk]*
Artocarpus communis	***kuluɣ, [ʃukun]*
Artocarpus heterophyllus	*[naŋka]*
Averrhoa bilimbi	*[balimbiŋ]*
Bambusa spp.	**qawuɣ*
Barringtonia asiatica	**butún*
Barringtonia spp.	***pútat*
Benincasa cerifera	*[kundur]*
Bixa orellana	*[galugaq]*
Caesalpinia sappan	*[ʃepaŋ]*
Calamus	**qúway/qúwey*
Calophyllum inophyllum	**bitá(ŋ)quɣ*
Cananga odorata	*[kanaŋa]*
Cassia alata	*[aʃuntiŋ], [galiŋgaŋ]*
Casuarina equesetifolia	**qaɣúsuq/qaɣusúq*
Ceiba pentandra	*[kapuk]*
Ceiba pentandra	*[kabu]*
Ceriops spp.	**teŋeɣ*
Citrus	*[limau], *muntay*
Clitorea ternatea	*[teleŋ]*
Cocos nucifera	**ñiyuɣ*
Coix lachryma-jobi	**qajelay*
Colocasia esculenta	**taleʃ*
Cordia dichotoma	**qañuñaŋ*
Cordia spp.	*[kanawa]*
Cordyline fruticosa	***ʃiɣi*
Cordyline spp.	*[ʃabaqaŋ]*
Cratoxylon spp.	*[garuŋgaŋ]*
Crinum asiaticum	***bakuŋ*
Curcuma zedoaria	*[temu]*
Daemonorops	**qúway/qúwey*
Derris elliptica	**tuba*
Dioscorea alata	**qúbi*
Dioscorea hispida	*[gaduŋ]*
Diospyros discolor	*[amaya]*
Diplazium esculentum	***pakú*
Dolichandrone spathacea	**tewí*
Donax canniformis	***banban,*niniq*
Dracontomelum edule	**daqú*
Enhalus acoroides	***lamún*
Entada phaseoloides	*[baluɣu]*
Erythrina sp.	**dapdap*
Ficus benjamina	**nunúk, [bariŋin]*
Ficus sp.	**jabi, **qaɣa*
Flagellaria indica	***suwag*
Gleichenia sp.	**qaɣiʃam*

Gnetum gnemon	*[báɣu], [ʃuka]*
Hibiscus tiliaceus	**báɣu*
Imperata cylindrica	**ɣiq*
Indigofera sp.	***táɣum*
Intsia bijuga/retusa	***ipil*
Ipomea pes caprae	***lambáyuŋ*
Ipomea reptans	*[kaŋkuŋ]*
Languas galanga	*[laŋkuwas]*
Laportea sp.	**jalateŋ*
Leea spp.	*[mali]*
Lygodium sp.	**qaɣiʃam, **nítuq*
Melaleuca leucadendron	*[gelam]*
Metroxylon sagu	***ɣumbiya, [qambuluŋ]*
Momordica charantia	*[paria/pariaq]*
Morinda citrifolia	*[baŋkudu]*
Murraya sp.	*[kamuniŋ]*
Nauclea spp.	*[beŋkal]*
Nipa fruticans	**nípaq*
Ocimum sanctum	*[kamaŋi]*
Oncosperma spp.	*[qaníbuŋ]*
Oryza sativa	**beɣas, *págey, *semáy/semév*
Pandanus sp.	**paŋudañ, **baŋkuwaŋ*
Pangium edule	***paŋi*
Panicum viride	**betéŋ*
Phragmites vulgaris	***taŋbuq*
Pipturus argenteus	*[adámay]*
Pisonia alba	**anuliŋ*
Pternandra coerulescens	*[bunut]*
Pterocarpus indicus	***náɣa*
Pterospermum sp.	***báɣuɣ*
Rhizophora sp.	***baksaw*
Sandoricum koetjape	*[ʃentul]*
Schleichera oleosa	*[kaʃambi]*
Schoutenia ovata	*[kukun]*
Sesamum orientale	*[leŋá]*
Sesbania grandiflora	*[tudi]*
Smilax sp.	*[bañay]*
Solanum melongena	*[teruŋ]*
Solanum nigrum	**amití*
Sonneratia sp.	***payatpat*
Sorghum vulgare	*[batag]*
Sterculia foetida	*[kalumpaŋ]*
Terminalia catappa	**katapaŋ, *talíʃay*
Trema orientalis	*[ɣeduŋ]*
Urena lobata	**pulút*
Vitex pubescens	***papa/pampa*
Vitex trifolia/negundo	*[lagundi]*
Zingiber officinale	**laqeya*

COMMON NAMES

bamboo (generic name)	**búluq, *kawáyan* (cf. *qúwey*)
bamboo (large kind)	***patuŋ*
banana	**puti/punti*
dammar-resin tree	***ʃáleŋ*
fern (growing in trees)	*[puni]*
ginger plants	***lampuyáŋ, *laqeya*
hardwood tree	***teɣáʃ*
laurel	*[medaŋ]*
mango	*[baluŋuq], *pásuq, **wai*
mat and plants for mats	***tíkeɣ*
mulberry	*[tañiud/tañiuj]*
onion	*[bawaŋ]*
palm (unidentified)	*[baŋa]*
rattan	*[naŋa], *qúwey*
rice (husked)	**beɣás*
rice (general)	**semáy/seméy*
rice (plant)	**págey*
parasitic plant	**lukút*
seaweed	**látuq*
shrub (unidentified)	*[kenduŋ]*
sugarcane	**tebús*
tiliaceous trees	***qanílaw*
tree (unidentified)	***binuwaŋ*
tree with sandpaper leaves	*[qampelaʃ]*
tree with poisonous sap	***laji*

AUSTRONESIAN CULTURE HISTORY THROUGH RECONSTRUCTED VOCABULARY (AN OVERVIEW)

R. DAVID PAUL ZORC

1. INTRODUCTION

Let us take a trip backwards in time in a very special kind of time machine. Its instrument panel has but two controls, labelled RECONSTRUCTION and SUBGROUPING, and its fuel is called DATA.

We are not the first to embark on such a voyage. The first successful one was undertaken over one hundred years ago by Hendrik Kern (1889). There were not many attempts for quite some time thereafter, perhaps because of the need for more fuel – abundant DATA had been amassed by Dempwolff (1938), which have been more than doubled by Blust (1970, 1973, 1980a, 1983-84a, 1986, 1989a). Hence, the time machine has been very active over the last two decades: Isidore Dyen (1971a, 1976), Otto C. Dahl (1976) and Blust (1977a, 1984-85).

We need not rewrite the manual on how to operate both switches. There are excellent, albeit disharmonious words on SEMANTIC RECONSTRUCTION in the works by Dyen (& Aberle), Dahl and Blust. So too for SUBGROUPING, but there is even more disagreement on this one.[1] The Formosan languages may represent a link with the distant past (since there may be as many as three distinct groups there) or they may be more linked to languages of the Philippines. The languages of the Philippines, Malaysia and most of Indonesia represent another group (Western Austronesian or Hesperonesian).[2] There are also the Central and Eastern Malayo-Polynesian groups (the latter includes some languages from eastern Indonesia and all those in the Pacific islands). If a related word (cognate form) with similar meaning is found in all four, it can clearly be posited for Proto Austronesian (PAN), the protolanguage of highest order. If it is not, then we must look carefully at its distribution. If it is found, for example, only in Formosa and the Philippines, can we safely and ineluctably assume that it represents a continuation of PAN and that it did not spread by borrowing? Would not the collection of a large number of such etyma lead us to caution or even indicate a potentially contrary subgrouping?

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1 In general, I follow the subgrouping proposed by Blust (1980a:10-13), with one major exception, namely my treatment of innovations shared between Formosan and Western Austronesian languages (the Philippines, Malaysia or greater Indonesia) which I label as Proto Hesperonesian-Formosan (PHF). Where the subgrouping of other scholars would reinterpret any evidence constituting the assignment of a level, I put a question mark after the protolanguage (e.g. PAN?, PMP?, etc.), although the evidence is treated herein as if the reconstruction were valid.

2 Some scholars reject this as a valid subgroup, but innovations (both widespread and selective) supporting it were presented in Zorc (1986:156,165-168).

A.K. Pawley and M.D. Ross, eds *Austronesian terminologies: continuity and change*, 541-594.
Pacific Linguistics, C-127, 1994.

We will therefore proceed on our trip through time through thirty semantic categories on a stage by stage basis *as if* the proposed reconstructions were innovations of that period. If further research raises the level of any given etymon, then the characteristics of the respective higher level will change accordingly.

There are certain areas where this procedure leads to otiose results. For example, RICE AGRICULTURE is probably attributable to early or even pre-Austronesian. Since all signs of it have been lost in Oceanic languages, the reconstructions are here labelled (and dealt with as) Proto Hesperonesian-Formosan (PHF = Western Austronesian + Formosan). Similarly, SEAFARING may have been PAN. However, the indigenous languages of Formosa generally do not have cognates (not surprising for groups that have been pushed inland and upland by foreign invasions), so much of the boating terminology is here labelled Proto Malayo-Polynesian (PMP).[3] Scholars who feel that such strictness is unwarranted may accordingly interpret the appropriate statements at a higher level than that assigned here.

1.1 PROTO AUSTRONESIAN (PAN) GEOGRAPHY AND NATURAL PHENOMENA

Coming upon the earliest settlement, some 8,000 years ago,[4] we note many straightforward phenomena that give us no pause, although we appreciate that we can discern what these people call them. Thus, *stone*, *rock* (*batúH)[5] and recurring roots for *dust* (*+bu)[6] and some form of *viscous fluid* (*+teq); *sky* (*láηit), *star* (*bi(n)túqen), *moon* (*búlaN), *night* (*Rabí?iH). In some dialects, the word for *day* (*qal(e)jáw) may have only been distinguished morphologically from the *sun* itself (*qa(n)jaw; but cf: *waRiH). Meteorologically there was: *monsoon wind* (*Sa-báRat), *rain wind (south-east)* (*tímuR), *cloud* (*Rabun), *rain* (*quZáN), yielding *potable fresh water* (*d_2a+Núm), which may also be obtained from a *drip*, *leak* (*túd$_2$uq).

The sea is a point of reference for the natives (*daya *towards the interior* and *laHúd *towards the sea*) where there is *low tide*, *exposed reef* (*ma-qaCi) and where *breakers*, *surf* (*Nabek) roll upon the *sand* (*qĕnay), leaving behind *foam*, *bubbles* (*bujaq). The terrain includes *hill*, *mound* (*búkij) and *lake*, *pond* (*dánaw). There is also a clearly identified *path* or *trail* (*Zálan).

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3 The Proto Malayo-Polynesian level is posited for any reconstruction that does not have a Formosan cognate but is otherwise distributed among the Western, Central and Eastern (Oceanic) subgroups.

4 These dates are my estimates based on the migrations and the kinds of linguistic changes that have occurred and the furthest reaches of the lexicostatistical method. Blust (1984-85:54f.) proposes a time-depth of 6,500 years (c.4500 B.C.), while Bellwood (1985:106) more conservatively suggests 5,000 years ago.

5 Space does not permit the presentation of supporting data for these reconstructions. However, the glossary in the appendix directs the reader to studies which contain such evidence. Conventions include the following:
(a) Consonant and vowel symbols in these reconstructions follow those proposed by Dyen (1971a:22f.), with the exception of *d with subnumerals (*d_2, *d_3), which are based on principles outlined in Dahl (1976, 1981); see Zorc (1987) for some scepticism on my part for the distinction between *d and *D (or *d_2);
(b) Accented vowels are determined on the basis of conventions established in Zorc (1978, 1983);
(c) Parentheses are put around ambiguously-determined elements, usually the facultative nasal.

6 A plus sign indicates a proposed submorphemic monosyllabic root, as discussed and exemplified in Blust (1988a, 1988b) or Zorc (1990).

1.2 EARLY WESTERN AUSTRONESIAN (PHF = PAN?)

Over the next millenium, the ecological zone has become higher (*peak of a mountain* (*qa-pucuk)) and more active (*earthquake* (*línuR), *typhoon*, *storm*, *hurricane* (*baRiuS), and *north wind* (*qamíS-an)). We can also discern early vocabulary for *lightning* (*kilát), *open-air*, *outdoors*, *midst of* (*CaSaw), *opposite shore* (*Si(m)paR), and *channel*, *flow(ing)* (*á+luR). At least two original words have developed alternate forms: *sand* (*benaqi) and *foam*, *froth* (*puCaq; cf: PMP *budaq).

1.3 PROTO MALAYO-POLYNESIAN (PMP) TIMES

Within another millenium (c.3500 B.C.) the group dispersed and was now well aware of numerous maritime phenomena (see sections 2 - 3): *littoral sea* (*dáRat), *island* (*nusa), *estuary*, *river mouth* (*naŋa (dbl: *binaŋa)[7],) *lagoon*, *harbour* (*namaw), *channel* (*sawaq), *high tide* [cf: 'yawn'] (*Ruab), *flow* (*qa+liR, *sa+liR), *current* (*qáRus), yet another word for *wave* (*qálun), and *saltwater* (*tasik) as opposed to *fresh water* (*wáhiR).

These people recognised an *inhabited territory/human ecosystem* (*banua), which included *woods*, *forest* (*qútan) and very rough terrain (*mountain* (*bulud), *mountain range* (*qilih), *mountain peak*, *elevated ground* (*bunḍuk)) in contrast with *plain*, *level ground* (*d$_2$á+taR), a knowledge of *cave* (*liaŋ) and *echo* (*-niŋal).

The weather was capable of being both *cold* (*ma-diŋ+diŋ) and *warm*, *hot* (*ma-panas), which yielded *fog* (*kabut). Weather of this period or place was *windy* (*děRes; cf: *wind*, *air* *háŋin) and *overcast*, *darkened* (*gu(n)+d$_2$em) with perhaps more than a usual amount of *lightning* (*qu-silaq), *lightning that strikes s.t.* (*ge+lap), *thunder* (*du+du, *ku+d$_2$ug, *le(ŋ)+gur, *rŭ(ŋ)guŋ), and *flood* (*baháq). Either these or earthquakes (encountered previously) made the world *shake*, *tremble*, *rock* (*ninih).

There were preoccupations with *dust* (*qa+búk, *qa+puk, *sa+puk, *debu; cf: PHN *a+búg) as well as one process that formed it, *decay*, *crumble* (*+bek, *+buk), and forms of *light*: *bright light* (*ni+law), *flash*, *sparkle* (*+lap), *radiance*, *ray of light* (*baná?aR), *shine brightly* (*dad$_2$aŋ), and the *morning/evening star (Venus)* (*(man)talaq).

1.4 LATER WESTERN AUSTRONESIAN (PHN) DEVELOPMENTS

As numerous groups left on journeys to the south and east across the Pacific, those left behind continued to spread out in the west experiencing more *earthquake* (*lind$_2$uR) and *thunder storm*, *lightning bolt* (*lentiq), *thunder* (*duR+duR), but perhaps with a lessening in the severity of the weather: *cloud* [not a raincloud] (*ram+bun),[8] *aftermath of a storm* (*renáy), *dew*, *drizzle* (*am+bun), *drizzle* (*ri+nis), and *south wind* (*salátan).

Their home continued to be near the sea with new words for *high tide* (*tá?eb), *flow* (*sa+luR), *current* (*seleR), *swell*, *waves* (*humbak), and *deep water* (*túbiR). However, they were drawn inland as well: *swampy ground* (*latiq), *slime* (*ban()lik), *valley*,

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7 Doublets (dbl), which Dempwollf (1938) called "Nebenformen", are reconstructions that are phonologically similar to one another (see Blust 1980a:25).

8 This reconstruction (PHN *ram+bun) is a disjunct of PAN *Ra+bun presented in section 1.1. Like many reconstructions, it is subject to scrutiny and re-evaluation, especially given Wolff's (1974) objections against *r; it is here taken at face value.

watercourse between hills (*le(m)bak, *le(m)baq, *lĕ(m)béŋ), *river* (*suŋay), *creek, ravine* (*bawáŋ, open expanse of land or water), and *primary forest* (*tuan) as opposed to *forest* (*halás).

1.5 PROTO PHILIPPINE (PPH) TERMS

The following forms are mentioned here in the hopes of finding earlier etyma rather than as proposals for first encounters: *tidal wave* (*dălúyun), *seashore* (*bay+bay), *rocky ground* (*bakúlud), *water well* (*bubún), *waterfall* (*bĕsáy), and *rainbow* (PSP *baluŋtu, PNP *buŋlun, which seems to have spiritual significance, see Blust 1983). It is also noteworthy that these languages replaced earlier words with the following: *island* (*pujuq), *dew* (*ha?+muR), *earthquake* (*Ridu?), *heat of the sun* (*ma-qínit), *windy* (*dejes), *forest* (*kălásan, *gúbat).

2. PROTO AUSTRONESIAN BOATING AND SEAFARING TERMINOLOGY

Certainly, with the diversity of the terrain just encountered, we might well wonder how they got to these places. The Austronesians are famous for their Oceanic voyages: spreading out from Formosa in the north to New Zealand in the south, Madagascar in the west and Easter Island in the east. Alas, on our present journey, there is not a lot to see at this time-depth. While it may be simply due to the lack of fuel (cognates in the upland Formosan languages), we may genuinely have discovered a prenautical stage in early Austronesian history. Only four terms which may relate to this sphere of activity are well-attested: *move away, transfer* (*SaliN), *drift with current* (*qáñud), *turn, veer to the side* (*liu-2),[9] and possibly *string, rope* (*CalíS), which would obviously have been involved in activities other than navigation. Ferrell (1969) indicates that all Formosan groups are known to use some form of *raft*; although we cannot reconstruct a word at this level, it plays an important role in subsequent stages and will be discussed in sections 2.2 - 2.4. Paul Li (pers.comm.) believes that PMP *baŋka? *canoe*[10] may be raised to this level on the basis of a cognate in Ketagalan (now extinct).

2.1 PHF

At this stage, there is one term relating specifically to *dugout canoe*; *boat* (*qabaŋ). One form represents a synonym for an earlier word, *turn, veer* to the side (*ileŋ). Another, *noose, loop* (*síLiw) fits nicely with *rope* (above). Lastly, an unsuccessful venture into the sea might result in *submerge* (*te+neb), from which *swim* (*laŋuy, dbl: *daŋuy, *naŋuy) would be the only recourse.

2.2 PMP

Ocean travel was now not only possible, but well advanced. Everything necessary for inter-insular and trans-Pacific travel was available: *canoe* (*waŋkaŋ,[10] *balútu), *load a*

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9 This convention indicates full reduplication; using the number two after a hyphen (-2) is followed in the orthography of Malay and Indonesian.

10 PMP *bangka? (in section 2) and PMP *waŋkaŋ (in section 2.2) are etymologically distinct.

canoe; *cargo* (*lújan), *go to sea* (*pa-laHud), *outrigger* (*kátiR, *saRman), *mast*; *post*; *pillar* (*tiqaŋ), *sail* (*láyaR), *canoe paddle, oar* (*beRsay), *paddle [v]*, *row* (*aluja, *paluja), *punt, boat pole* (*tĕkén), *rudder*; *steer* (*quliŋ), *turn, veer to the side* (*biliŋ), *bail, water-bailer* (*limás), *cross-seat in a boat* (*seŋkar), *rollers for beaching a canoe* (*laŋen), *board, ride* (*sakáy), *join along the length*, which also applied to a *raft* (*da+kit), *putty, caulking substance* (*+lit, *bu+lit), *float* (*a(m)puŋ), *sink, disappear under water* (*tĕlém), *fathom* [measure of depth] (*d_2ĕpáh), *sheltered (as from wind or rain)* (*d_2uŋ+d_2uŋ), and *dive, plunge*; *drown* (*ke+ñej).

2.3 PHN

Perhaps not surprisingly, after the successful innovations of Malayo-Polynesian times, there are not many new developments. We find alternate forms for *raft* (*Rá+kit) and *float* (*lĕ(n)+táw), a term for *bring up (a boat to shore)* (*u-dahik), and a name for *prow, bow* (*zúluŋ).

2.4 PPH

Again, for the most part, synonyms have appeared for artefacts or actions known much earlier: *oar* (*gáʔud), *sink* (*lúnud), and *drown* (*lĕmés). In the Philippines, yet another term for *raft* (*alud; PSP *arur) has arisen, probably attesting to its importance over the *canoe* (ˣbaróto, ˣbarangay,[11] which forms are widespread, but with so many irregular reflexes that they must be taken with caution) as the basic means of navigation.

Similarly there are widespread forms in Western Austronesian languages, such as ˣpadáw *sail boat* and ˣkăpál *ship* (both from Tamil), which indicate that our Austronesian seafarers were open to innovation in design and lexicon.

3. PAN FISHING AND SEALIFE

Given the importance of and orientation to the sea, there is abundant evidence that the earliest Austronesian people drew their subsistence from it. The generic word for *fish* (*Si-káʔen) literally means *used for eating*, a morphological combination that persisted over the millenia (cf: PPH *i-sedaʔ *fish*; *eaten with the staple*). They obtained such catches by means of *derris root fish poison* (*túbaH) and the *fish hook* (*kawíl). The earliest diet probably included: *roe* (*biRaS; cf: PHN *piRah), *goatfish* (*Ciqaw), *adult mullet* (*kaNasay), *rayfish, stingray* (*páRiS), *shark* (*qíSu), and *freshwater eel* (*tuNa). The *cowrie shell* (*tu(m)bak) was known and may have been used (e.g. as a horn or in the manufacture of fishhooks).

3.1 PHF

The PHF level adds but three terms to the above inventory: *bait* (*paʔén), which complements *hook* (above), the *swamp or land crab* (*kaRaŋ), and the *turtle* (*qanCipa).

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[11] The raised x indicates a spurious (invalid) reconstruction.

3.2 PMP

As with the growth of their boating technology, so too was there a vast increase in methods of fishing. Two roots appear in forms replacing the original word for *hook* (*+bit, *+wit); there is another word for *bait* (*baŋi). Braiding techniques (see section 13) allowed the introduction of the *bamboo basket trap for fish* (*bú+bu) and of a *fish net* (*saruk) and *dragnet* (*puket). The use of the *weir* (*qem+peŋ) was accompanied by a *fish drive*; *churn water* (*kebur), undoubtedly a communal activity.

Equally impressive is the knowledge of numerous species of fish: barracuda, *Sphyraena obtusata* (*qalu), *big-eyed scad* (*qatulay), *damsel fish* (*mutu), *dolphinfish* (*lajih), *grouper* (*keRteŋ), *milkfish, Chanos chanos* (*qawaʔ), *perch* (*kurapu), *pilotfish, Remora* (*kemi, *gemi), *pufferfish, porcupinefish* (*taRutuŋ), *sailfish* (*saku-layaR), *Spanish mackerel* (*taŋíRi), *squirrelfish* (*taRaqan), *stonefish* (*nepuq), *trevally, Caranx* spp. (*bilu), *tuna, bonito* (*qatun), *unicornfish* (*qumay), *wrasse, Cheilinus* sp. (*mamin), *young mullet, Neomyxus chaptalii* (*qaRuas), *Scomberoides* sp. (*daRi), *marine-eel* or *fish* sp. (*aRemaŋ), and an unidentified fish sp. (*turiŋ). The term for *gills* (*hásaŋ; cf: PNP *hadaŋ) has persisted.

The Malayo-Polynesians knew of at least five species of *crab*: *coconut* (*qayuyu), *hermit* (*qumaŋ), *mangrove* (*qali-máŋu, *qali-maŋaw), *rock* (*kaRakap) and *sand* (*kaRuki). Other forms of sealife encountered were: *dugong, seacow* (*d$_2$uyuŋ), *starfish* (*saŋa-2), *green sea turtle, tortoise* (*pěñúh), *octopus* (*kuRíta), *octopus tentacles or arms* (*gaway), *squid, cuttlefish* (*nuʔus; cf: PHN *kanuʔus), *crustacean* (shrimp, lobster) (*qud$_2$áŋ), *oyster* (*tiRem), *cateye shell* (*qaliliŋ), *conch shell, triton* (*tam-búRi, *buliq), *giant clam* (*kima), *coral* sp. (*buŋa), *snail*; *barnacle* spp. (*sisi[q]), *crocodile* (*buqáya), and, of course, *seaweed* sp., *moss* (*lúmut, *limut, *lamut).

3.3 PHN

PHN peoples also refined fishing methods with the development of more kinds of *fishnet* (*Rambat), *large fishnet* (*salambaw), *fish net or trap* (*siʔud, *tuad$_2$), *fish trap* (*bak()lad), *fish pen* (*ban()lat), or they could *catch fish/shrimp with the hands* (*gamaʔ).

Their waters also teemed with *pufferfish* (*butíti), *mullet* (*balának), *murrel, Ophiocephalus striatus* (*qabu-$_2$), *seabream, Sparus berda* (*bakúku), *crab* sp. (*qaRáma), *freshwater eel* (*kasuli; cf: PSP *kasíli), and several unidentified *marine fish* (*-punti, *maŋali) or *fish* (*bagahak, *baŋkulis, *bunuR, *katambak, *kulambar).

3.4 OTHER DEVELOPMENTS

The speakers of Central Malayo-Polynesian encountered the *hawksbill turtle* (CMP *keRaŋ), while Philippine speakers did well with *roe* (PPH *búji?; cf: PSP *bíhed), *tiny shrimp* (*ajamáŋ), various *shrimp* sp. (*pasáyan, *hí+pun), *oyster* (*talabá), and with *land turtle* sp. (*pagʔuŋ) or *sea turtle* (*pawíkan).

4. PROTO AUSTRONESIAN PLANTS AND FLORA

Given the terrain and the tropical or near-tropical weather these people encountered in their homeland and new settlements, numerous plants could be found. Some of these proved very useful: *bamboo* sp. (*qauR), *rattan* (generic?) (*quáy), *thorn* (*Cěnék, *dúRiH), *tree*, also the word for *wood* (*káSiw). Some were edible or yielded *fruit* (*buáq) in a *bunch, cluster* (*+puŋ), such as the mango, *Mangifera indica* (*Suai; PMP *wai), *Cordia dichotoma* or *myxa* or possibly the *Anona reticulata* (*qaNúNaŋ), *Dracontomelum edule* (*daqu), or the fern *Athyrium esculentum* (*pahku). From the earliest times one could find the mucilaginous plant, *Urena lobata* (*puluC), nightshade, *Solanum nigrum* (*SamuCí), the pandanus tree, *Pandanus tectorius* (*paŋud$_2$áN), the hibiscus, *Gnetum gnemon* (*báRu), a parasitic plant, *Asplenium nidus* (*lukuC), and sword grass, *Imperata cylindrica* (*Riaq).

4.1 PHF

PHF plant life included two more species of bamboo, *Bambusa spinosa* (*kawáyan (spiny) and *búluq (thin)). There was the palm, *Caryota* spp. (*qanibuŋ), the shrub *Smilax* sp. (*baNaR, *banaw), the plant *Diospyros discolor* (*kamaya), and a pine tree, *Pinus* sp. (*saleŋ, yielding *resin*, which was sometimes given the same name). Fruit trees created a greater awareness of their attributes: *ripe* (*lu?um), *tree trunk* (*púnuq; PMP *púqun), *stump (of a tree)* (*tuqed$_2$), and another word for *thorn* (*suqaR).

4.2 PMP

PMP reflects a period of absolute natural bounty. Firstly, there is a plethora of terminology relating to plants: *split open*, *blossom* (*be(ŋ)+kar, *be(ŋ)+kaR), *bud*; *flower*; *fruit* (*búŋah), *leaf* (*d$_2$áhun), *fork of a branch* (*pe+ŋah, *sa+ŋáh), *branch* (*daqan, *daŋ+k[ae]q), *root* (*akad2, *wakaR, *wakat, *waRet; *Ramút, cf: PFM *RamiC), *buttress root* (*dalij; cf: PHN *dalig, PSP *daliR), *vine*, *aerial root* (*waRej; cf: *Rawej), *young plant shoot* (*taluk), *heart (of plant)*, *pith* (*qú(m)+buj), *sap*, *syrup* (*ZuRúq).

Secondly, more plants became known: a fern (*aResam), another fern, *Cyathea* sp. (*puni), a lily, *Dracaena* or *Cordyline* spp. (*siRi), the stinging nettle, *Laportea* (*lateŋ, *zalateŋ), the vine *Flagellaria indica* (*huaR), a *grass* sp? (*baliji), and an unidentified plant (*lumbu). Some were useful: *bamboo* sp. (*teriŋ), *Schizostachyum* sp. (*tamiaŋ), *Dendrocalamus* (*bituŋ, *pituŋ), *Bambusa vulgaris* (?) (*periŋ); the fern, *Lygodium circinnatum* (*ní(n)tuq), ramie, *Boehmeria nivea* (*rami; cf: PSP *qadamay), *Donax canniformis* [used for making baskets] (*niniq), *Grewia* spp. (*qanilaw), *Leea* spp. (*mali), *Millingtonia hortensis* (*taŋga), *Pipturus argenteus* (*ad$_2$amay), *rattan* sp. (*naŋa). More edible fruits became accessible, such as *Citrus* sp. (*limaw, *muntay).

Thirdly, there was a virtual forest of PMP trees: *Alstonia scholaris* (*ditaq), *Antiaris* [with poison sap] (*laji), *Artocarpus* sp. [breadfruit] (*teRep), *Artocarpus elastica* (*kuluR, *kulu), *Barringtonia* spp. (*butun), *Caesalpinia* sp. [thorny tree] (*sepaŋ), *Calophyllum inophyllum* (*bitaquR), *Cananga odorata* (*kanaŋa), *Casuarina equisetifolia* [pine] (*qaRúhu?), *Ceiba pentandra* [kapok tree] (*kabu), *Ceriops* [mangrove tree] (*těŋéR), *Rhizophora* (*bakhaw), *Cordia* spp. (*kanawa), *Dolichandrone spathacea* (*tui?), *Erythrina indica* (*d$_2$ap+d$_2$ap, *d$_2$e+d$_2$ap), *Ficus* fig sp. (*qaRa?), *Ficus benjamina* (*nunuk), *Gnetum gnemon* (*suka), *Intsia bijuga* (*qipil, *teRas), *Melochia umbellata* (*tenu),

Morinda citrifolia (*ñeñu), *Murraya paniculata* (*kamuniŋ), *Nauclea orientalis* (*baŋkal), *Palaquium* spp. for timber (*ñatuq), *Pisonia umbellifera* (*qanuliŋ), *Pterocarpus indica* (*náRa), *Schleichera trijuga* (*kasambi?), *Schoutenia ovata* (*kukun), *Terminalia catappa* (*talísay), *Trema orientalis* (*deRuŋ), *Vitex pubescens* (*-pa(m)pa), tree sp. (*kanarum).

4.3 PHN

PHN flora were equally abundant and prolific: *bunch, cluster (of fruit)* (*búliR), *leaf* (*bulúŋ), *young shoot* (*seli, *semi), *undergrowth* (*samun), *young (of vegetation)* (*bataq). More words appear for *bamboo* sp. (*pătúŋ, *telaŋ), large sp., *Dendrocalamus* (*bětúŋ), *rattan* (*apis), and mango, *Mangifera indica* (*pahuq). Other edible species are the jackfruit, *Artocarpus* (*naŋka?, cf: PPH *ñaŋka?, *laŋka?) and a tuber, *Dioscorea* spp. (*gaDuŋ) [cf: *green*].

Other species at this level include: sword grass *Imperata cylindrica* (*eRiq), *grass* (*qalámen), *grass or rush* sp. (*sedsed), the flowering plant, *Crinum asiaticum* (*bákuŋ), the palm trees, *Livistona rotundifolia* (*qanáhaw) and *Pterospermum diversifolium* (*bayuR), pandanus, *Orania* (*báŋah), plant sp. with ceremonial uses (*taRabas), *Cassia* sp. (*asuntiŋ), a plant used for dyestuff (*gamat), and unidentified plant spp. (*tanduk-2 and *lambayuŋ); a timber tree, *Dipterocarpus* (*balaw), the trees *Heritiera litteralis* (*dúŋun) and *Indigofera* (*táRum), some as yet unidentified trees (*amaRa, *baŋkiriŋ, *kenduŋ), a timber tree sp. (*Rihuq), and a vine from which poison is obtained (*ziteq).

4.4 DEVELOPMENTS AT OTHER LEVELS

In Southern Formosa we can find: *orchid* (PSF *SabaR) and *camphor laurel* (*d$_4$akeS).

In the Philippines there is *hemp* (PPH *Rutay) and Manila hemp, *Musa textilis* (*abaká), the molave tree, *Vitex parviflora* (*ha(N)-bur?aw), the tree *Dipterocarpus grandiflora* (*apítuŋ), another tree sp., *Lagerstroemia* (*banabá), the *Ficus* tree considered a spirit residence (*balíti?), and cogon grass, *Imperata cylindrica* (*kúRun).

In the Indonesian archipelago there is: *fennell* (*adas), a tree similar to *breadfruit* (*medáŋ), and *plants with stinging hairs* (*amiaŋ).

With regard to all of these reconstructions, we must be chary. Widespread distribution alone is not necessarily a factor of legitimacy. Some of the flora are probably later introductions since the words for them are recent borrowings: witness the almost universal distribution of peanut (< Mexican Spanish ˣmaní?) in the Philippines.

5. PAN FARMING AND AGRICULTURE

Since there was such lush vegetation, some form of *gathering, collecting* (PAN *qalaq; PMP *alap) must have been practised. But even the early Austronesians were not simply gatherers – they were farmers; witness *plant [v]* (*CaNém) and *grow [vintr]*; *plant sprout [n]* (*Cú(m)buq). There was an awareness of *undeveloped/fallow land, field* (*Cálun), which they would then *cut away, clear vegetation* (*tebaS), in which a *garden, cultivated field* (*qumáH) would be established. Irrigation was provided: *dig (out); canal, ditch* (*kálih).

Foodcrops included *sugarcane* (*těbúS), *taro, giant arum, Alocasia* sp. (*bíRaq), and *millet, foxtail* sp. (*beCeŋ). There is no proof that the *banana* was among them, but every major AN subgroup has a word for some species of this fruit (cf: PFM *belbel, PWI *pisaŋ, PPH *sáRiŋ, PNP *báRat, and reconstructions below). Crop preparation included *pounding* (*báyuH, with mortar and pestle?) and *winnowing* (*taSép, *tapeS).

5.1 PHF

Whether a matter of loss by the groups that ventured across the Pacific or of innovation within the next millenium, the following terms relating specifically to RICE AGRICULTURE are well-attested: *rice (generic)* (*Sumay, *Sĕmay, *Hemay), *seed (for sowing), seedling* (*benSiq), *rice plant, unhusked rice* (*pájey), *husked rice* (*běRas), *rice straw, stubble* (*ZaRámi), *mortar* (*lě+suŋ, *lu+súŋ), *pestle* (*qaSelu), *thresh* (*Ri?ék, *iRík), *bran, chaff, rice-husk* (*qeCá).

There are two more words for *millet*: *Setaria italica* (*záwah), *millet* sp. (e.g. *sorghum*) (*baCaj). Some forms relating specifically to agricultural activities have only a western distribution: *dig in the earth* (*kar+kar), *pull out, pluck*; *weed* (*guC+guC), and *harvest* (*qániH).

5.2 PMP

The Malayo-Polynesians continued this predilection for agriculture: *earth, soil* (*tanaq, *taneq), *fertile (of soil)* (*le+mek), *fertile soil* (*bu(R)+taq), *mud* (*pítak), *wet (of soil)* (*lemeŋ), *obstructed (of the flow of water)* (*se+pet), *heap up*; *cover with earth* (*+bun, *tá+bun), *hoe, digging stick* (*suan, *sual), *sow, scatter (seed)* (*+buR, as in *ha(m)+buR, *kam+buR), *plant [v]* (*múla), *pull out, uproot* (*a(m)+but, *i+but), and *weed [v]* (*babaw). Slash and burn agriculture may have appeared: *set fire to, burn* (*tutuŋ).

Malayo-Polynesian crops now included: *banana* (*punti), *ginger* (*laquya, *laqia), *melon*; *cucumber* (*timun), *sago* (*Rambia, *Rumbia, *sagúh), *dry sago branches* (*kumbal), taro, *Colocasia* sp. (*tales), turmeric, *Curcuma zeodoaria* (*kúnij), and yam tuber *Dioscorea alata* (*qú(m)bi). Some of these food products were subject to *grinding, milling* (*gílin).

Attributable to PMP are the *coconut* (*niúR) and *coconut husk* (*bunút); COCONUT FARMING per se must have developed by PHN times: *scrape out meat from a coconut* (*suq+suq), *coconut cream/milk* (*getaq, *ga+teq).

5.3 PHN

The Western Austronesians developed or improved upon existing farming methods: *hack a passage through* (*ben+tas), *cut away underbrush* (*ta+bas), *cut off, prune*; *cut down* (*teb+teb), *dibble, sow (rice seedlings)* (*ha+sék), *sow, scatter, broadcast seed* (*sá(m)+buR, *sa(m)+beR, *qa(m)+bud$_2$), *heap, pile* (*bun+bun), *hoe, chop up soil* (*bacuk). Irrigation was practised: *block, obstruct* (*ha(m)+beŋ), *hollow bamboo tube* (*buŋ+buŋ), *mud* (*bŭtá?, *+tek, *+cak), *waterlogged (of ground)* (*ba+cak).

Additional species of *banana* were discovered and cultivated: *plantain* (*sab?a), *banana* sp. (*balat), *fell banana stalk* (*teba?). *Eggplant* (*terúŋ), sesame, *Sesamum indicum* (*lěŋáh), and *garlic* (*báwaŋ) were possibly introduced.

Rice agriculture rose in importance as the staple, yielding several alternate forms for pre-existing words (*mortar* (*e+súŋ), *pestle* (*qahlu, *qalhu, *laqlu; PPH *haqlu), *rice husk, bran, chaff* (*qapa, *qepah, *padek)), use of the *millstone* (*giliŋ-án), and the process of *separating the chaff from the grain* (*siji) by using the *winnowing basket* (*níRu).

6. PAN FAUNA – LAND ANIMALS AND THEIR CHARACTERISTICS

From the beginning, Austronesians knew of the *dog* (*ásu), which was *tame, accustomed to* man (*ma-Najam, *ma-dajam) and figured in hunting expeditions (see section 8). The *pig* (*běRék, *bábuy) could be found in a *lair, den, nest* (*Libu[?H]). Creepy-crawly creatures may not have been differentiated as *worm* or *snake* (*qúlej, *úlaR) and there was always the *rat* (*labaw; cf: PMP *balabaw; PHN *ba+baw; PPH *am+baw).

6.1 PHF

PHF times perhaps saw an increase in *domestic animals* (*qáyam), one of which was the *pig* (above), now not only hunted, but kept in a *pigpen* (*qubeŋ). They developed another word for *tame, accustomed* (*Lam+Lam), which was probably also applied to a *carabao or ruminant* (*Luáŋ, *qaNuáŋ), which was an animal with a *horn* (*uReŋ). In the wild, there was the *scaly anteater, pangolin* (*qaRem), a kind of *squirrel* (*buHut), *male of ruminants, buck deer* (*salajeŋ), which could be identified by its *bark (of a deer)* (*de+kiŋ), as well as a *monkey* sp. (*luCuŋ) which also had their identifying *scream of monkeys, chattering* (*keriq). Another term for *snake* (*buLay) was developed.

6.2 PMP

PMP speakers encountered *deer* (*Rusa; cf: PHN *uRsa, PSP *usá), the *civetcat* (*músaŋ), the *scream of a monkey* (*keraq, *kusik), and some animals with a *growl, snarl* (*eŋer) (cf: *leopard* (PSF *likuLáw) which belonged to a different period and place). The less pleasant encounters: *fruit bat* (*păníki), more species of *snake* (*nipay), *large snake* sp. (*anipa), *python* (*sawáh) and *earthworm* (*bulati, *kalati).

6.3 PHN

PHN immigrants ran into a *wild ruminant* sp. (*tamadaw) and the *tiger*; *animal that jumps* (*qaRim?aw), yet another species of *monkey* (*ayuŋ; cf: PPH *bákes) and *venomous snake* (*depuŋ). They learned to domesticate the *goat* (*kamdiŋ, *kandiŋ, *kambiŋ) for food and the *cat* (*kutíŋ; also *púsa?) as a pet.

6.4 OTHER DEVELOPMENTS

Central Malayo-Polynesian speakers were probably the first Austronesians to see the *bandicoot, marsupial rat* (*mansar) and *cuscus* (*kandoRa), as described in Blust (1982a).

PPH speakers seem to have a generic for *animal* (*háyup) – or has an earlier word been lost? Surely they were not the first to encounter the *frog* (*bak+bak, *p/al/aká?) or to care enough to name the *puppy* (*itu?)?

A term for *horse* (PWI *azar-an) was reconstructed by Dempwolff, which literally means *be instructed*, but this is surely a case of a local term for a recently introduced animal.

7. PAN BIRDS AND FOWL

PAN speakers were familiar with the *hornbill* (*kalaw), *dove* sp., *pigeon* (*báluj), *wild dove* (*púnay), and therefore with *wing* (*pánij) and *egg* (*tělúR).

7.1 PHF

PHF speakers encountered the *owl* (*qekuŋ); developed another word for *wing* (*pak+pak), and always marvelled at the ability of birds to *fly* (*layap; cf: PMP *Rebek; PHN *lě(m)pád$_2$, *layaŋ, *sayap).

7.2 PMP

PMP travellers probably domesticated the *chicken, fowl* (*manúk), since we find a *word used to call chickens, etc.* (*kur). These would, of course, lay eggs with their characteristic *cackle* (*kek+kek), then *brood, sit on eggs* (*e+kep).

Wherever they went they saw the ubiquitous *crow* (*kuak; cf: PHN *gak+gak; PPH *u+wák, *wak+wak). They met the *omen dove* (*-muken; PHN *-buken). Lexical replacement continued with words such as *wing* (*qelad$_2$), *tail feather* (*lawí).

7.3 PHN

PHN settlers got to know the quail, *Turnix* sp. (*púRuq, *puyuq), the *swallow* (*kalapini), the *kingfisher* (*bakaka), and some *bird sp. and its cry* (*tu?aw). They continued to raise chickens who would *scratch up the ground* (*kahiR) and *brood (of a hen)* (*qe(n)+dem). Kern discussed the *heron* (*baŋaw), but cognates are so far limited to Western Indonesian languages.

8. PAN HUNTING TERMINOLOGY

It is clear that the Austronesians used the *bow* (*búsuR), *bowstring* (*d$_2$ělés), and *arrow*; *shoot an arrow* (*panaq), which would *pierce* (*Ce+sek). At night they were able to see or move about with *torch light*; *resin* (*damaR; cf: PHF *sáleŋ *resin*; PMP *sulúq).

8.1 PHF

By PHF times a clearcut term for *hunt, go hunting* (*qaNúp) developed. In this as well as fishing they used a *trap* (*qaCeb or *taqén) with *bait* (*pa?én), whereby on land the prey

might be *hanging caught* (*káwiL). If one could not *hit the mark* (*kěNá?) with his weapon, in some cases, a lucky person might simply *snatch, grab* (*qáRaw) a catch.

8.2 PMP

The PMP people used the *spear* [*n/v*] (*saet) and set either *bamboo trail pitfall spikes* (*suja) or a *snare* (*zariŋ). *Bird lime* (*pulut) also figured in this endeavour.

8.3 PHN

PHN speakers improved upon the *spear* (*baŋkaw), developing a *bamboo spear* (*suligi?), which made it easier to *hit the target* (*táma?). Trapping became more skillful when they developed a *booby-trap* (*balá(n)tik) with a *trigger, tension-set* (*baquR) otherwise known as a *bamboo spring trap* (*baweR).

8.4 PPH

PPH settlers continued this prowess at hunting: *seek, look for* (*hánap), *look for, hunt out* (*tiŋén), *drive away, chase* (*á+buR), and *hunt (at night)* (*pulaw).

9. PAN COOKING AND FOODSTUFFS

The Austronesians prepared their food in *fire* (*Sapúy), either using *charcoal* (*qújiŋ; cf: PHN *qa+jeŋ, *buriŋ, PPH *úsiŋ) or *ashes* (*qabúH; cf: PMP *abus). Some foods they ate *raw, unripe* (*ma-Hátaq). They could *heat s.th. or warm oneself by fire* (*d_2a(ŋ)+d_2aŋ). They might *pound (prepared food)* (*tuk+tuk) and then *smoke fish or jerk meat* (*CapaH), *broil, roast in/over fire* (*CuNuH), or *cook by boiling* (*na+suk, *Nasu), after which they would *eat* (*ká?en, *kaan; cf: PHN *amaq) by *biting* (*kat+kat, *kaRáC; cf: PMP *keteb, *ketep; *nibbling* *ket+ket, *kit+kit, PHN *kut+kut) or *sucking* (*sep+sep, *tip+tip) as appropriate.

They must also have known how to *butcher* (*bunúq) their *pig* (see section 6) or their quarry. Food would generally have to be consumed within the day or it would get *rotten* (*buRúk; cf: PMP *busuk, PNP *buyúk), although there may have been some attempt to preserve it for short periods: *cork, stopper, plug* (*seŋ+seŋ).[12]

They consumed *meat, flesh* (*Sesi, *Sisi) from their hunting or trapping, *eggs* (*qi-CěluR, *qatěluR; cf: PHF *Re+bun) and fruit from gathering, and the products of their farming. They seasoned with *salt* (*qasiRa), but too much was *salty* (*qasíN; cf: PPH *ma-ádat). Another flavour they recognised was *sour* (*qal+sem; cf: PHN *la+sem), probably experienced from unripe fruit.

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12 The Oceanic reflexes of this form have to do with stopping up holes in canoes, so the assignment here may be in error for one to do with boating (see section 2).

9.1 PHF

PHF peoples learned that too much fire was not a good thing; it produced irritating *smoke* (*qĕbél; cf: PMP *qasúh). Although one could *cook* (*taNek) over or in a fire, they probably used *embers* (*báRaH). Foodstuffs, which certainly included *vegetables* (*NaCéŋ) and some form of *mushroom* (*quHuŋ), could be placed in a *cooking utensil* (for scorching) (*qaŋeliC), possibly using some *grease, fat* (*SímaR) for a better *taste* (*taLam, *taNam; cf: PMP *ñam+ñam). If there were *leftovers* (*teda?), these could be put into an *earthenware jar* (*balaŋa?; PPH *baŋa?) and preserved with *salt* (*timus). Another flavour now recognised was *bitter* (*paqíC), which may have caused them to *spit (out)* (*lupaS).

9.2 PMP

During PMP times, the enhancement of fire-making by using a *firebrand* (*aluten; cf: PHN *aliten) or *tinder* (*bád$_2$uk), led to the development of the *trivet, three stone fireplace* (*dalikán) and *cooking pot* (*kúd$_2$en) with some kind of *cover* (*Raŋ+kub, *aŋ+kub) in which they could *cook over a fire* (*baŋi) or *heat food up* (*la(ŋ)ga?). *Cooking* (*Zakan) could be done either with *fat, grease* (*meñak; cf: PHN *miñak) or *vegetable oil* (*láñah), otherwise food might get *smoked, charred* (*anús, *anu?us).

Means of preparation included: *spreading out in sun to dry* (*bi+láj, *bĕ+láj), *crush by pounding* (*bek+bek), *plucking (feathers), pulling out (entrails)* (*but+but), *peeling* (*ke+las), *cutting, slicing* (*gĕrét), *cutting into pieces* (*keleŋ), or *skewering* for a barbeque (*tuduk; cf: PHN *te(n)+dúk).

Their diet included (among others treated above): *preserved meat or fish* (*kenas), *insides*: *meat, soft-core, pith* (*qunéj), and *milk* (*Rátas) to *drink* (*inúm; cf: PHN *m-inúm). They may have learned to savour *spicy hot* (*ha-pějes) foods.

9.3 PHN

In the PHN kitchen, new words were used for *cooking* (*lú(n)tuq) and *putting in or over a fire* (*alub). They had to be wary of the danger of *sparks, burning ashes in the wind* (*lalatu). Methods included: *slicing* (*sayad; cf: PPH *tájip *cut, pare*) or *dicing, cut fine* (*qiRis) done with a *knife* (*pisáw) and *mixing foods together* (*labuR, *lahúk) done with a *spoon, ladle* (*tidús). They also began to *pickle (in brine)* (*buduh). *Soup, broth* (*sa(m)báw), *porridge, rice gruel* (*buR+buR), *fat* (*tabé?), and *tripe* (*ba(t)bat) were added to the menu. They would take *provisions* (*bálun) for forays away from home; such food might be put into a bamboo internode *storage container* (*tuŋ+tuŋ).

Their tastes became more discriminating, perhaps craving something *sweet* (*e+mís; cf: PPH *ta?+mis) and rejecting anything *tasteless* (*qa(m)+baR) or *tainted, rotten* (*baRiw).

There is some doubt when and how newer cooking utensils may have been developed, since the following etyma show reflexes more characteristic of borrowing rather than inheritances: *pot, frypan* (*kăwáli?) or *frypan*; *cooking pot* (*pariúk); cf: *cauldron* (^{x}káwaq < Mandarin kuo).

9.4 PPH DEVELOPMENTS

A special word appears to have developed for *viand*, food besides main starch (*seda?, *sidá?; cf: PSF *damai). Other interesting words that may prove to have a more ancient pedigree include: *fetch water* (*sak(e)du, *sa?(e)geb), *take from the fire* (*há?un), *cool down* (of food) (*báhaw), which would be eaten the next day for *breakfast* (*pamáhaw). The *mung bean* (*balátuŋ) was added to the menu.

10. PAN INSECTS – EATERS BECOME THE EATEN, HUNTERS THE HUNTED!

Besides the fauna and birdlife they knew, many of which they raised, hunted, or ate, PAN speakers had to put up with: the *house fly* (*lá+ŋaw), *body or clothes louse* (*túma), *head louse* (*kúCuH), *nit*, *louse egg* (*qa-liseSáq; cf: PMP *leséq, *lisáq), *cockroach* (*Hípes), *spider* (*láwaq), *centipede* (*qaluHípan, *qalipan), and *mite* (*káRaw). They may have had some taboo concerning the *butterfly* (*qaLi-baŋ+baŋ) (see Blust 1983).

10.1 PHF

By PHF times they knew the *cicada* (*Nali), *jungle leech* (*qaLi-mátek), *flea* (*qatímela), some *bug*, *noxious insect* (*bá+ŋaw), and suffered the stings of the *paddy leech* (*qaLi-meCaq; PHN *lintaq) in their ricefields.

10.2 PMP

PMP peoples had to endure the stings of the *mosquito* (*ñamúk, *lamúk), *gnat*, *sandfly* (*nek+nek), *ant with venomous bite* (*ha-me(n)tik), the continued irritation of the *fly* (*lálej), while the *termite* (*ánay) ate away at their various constructions (see below).

10.3 PHN

PHN migrants met with more species of *ant* (*si(n)jem, *sějém, *lalatu), the *beetle* (*a(m)buqaŋ), an *insect destructive to rice* (*za+ŋaw), the *spider* (*kăwá?), and the *weevil* (*buk+buk).

10.4 PPH

PPH residents had to deal with the *locust* (*dúdun) and a sufficiently irritating number of *nits* (*íRit) and *mosquitoes* (*t/aR/enek; PSP *tag(e)nek) to warrant the new words for them.

11. BEES AND APICULTURE

But even with these plagues from the insect world there was a bright side. At various times in their history, Austronesians learned of the *honeybee* (PMP *wañi; cf: PFM *waNuH), bee, *Apis indica* (PMP *qaniRuan), and the uses of *beeswax* (PMP *lilin). Western Austronesians learned to *drive off bees*, *smoke bees away* (PHN *púhaR),

especially the *bumblebee* (PHN *-buyuŋ; cf: PPH *-búyug) to get their *honey* (compare Dempwolff's PWI *madu to Proto Indo-European *medhu-).

12. PAN BUILDING AND CONSTRUCTION

The very first structures included a *house, family dwelling* (*Rumaq) in which they would *lay mats* (*SapaR) to sleep. Additionally they had developed a *field house, hut, village granary* (*le+paw), reflecting the importance of agriculture. To keep away vermin, they were probably elevated with entrance by a *runged ladder* (*tukad). People lived in *hamlets*; *kin-based residential units* (*kuan).

Methods of manufacture involved: *hew, plane (with adze)* (*taRáq), *whet, sharpen* (*Hásaq), *cut, hack* (*tek+tek), *hammer, pound* (*tuq+tuq), *drive in* (as post, nail or wedge) (*pa+cek), *grate, rasp, scrape* (*kud$_3$+kud$_3$; cf: PHF *ka+rut, PMP *ka+Rud). Materials used included: *wood, stick* (*káyuH) and numerous useful plants such as *rattan* and *bamboo* (see section 4). There was a continuous preoccupation with some form of *adhesive, sticky substance* (*dě+kéC, *di+teq; cf: PHF *Le+keC, *takid *stick, adhere*; PMP *ra+ket, *da(ŋ)+ket).

12.1 PHF

By PHF times another *field hut* (roofed structure) (*sa+paw) had evolved. Additionally, some special form of *door(way)* (*qe+Neb) was built that had a corresponding verb, *close (door)* (*qi+Neb) and a *fence* (*qálad), possibly of *split bamboo* (*saq+saq), could keep animals out of the *front yard*; *cleared area* (*Ná+tad$_2$).

Tools of this period included the *hammer*; *hit with implement* (*dak+dák) and some form of *handle* (for a tool) (*púlu) such as a *machete* (*malat) (see section 18).

12.2 PMP

The PMP emigrants may have formalised the design of the basic living unit. It had an *erect, upright* (*te+zek) *housepost, pillar*; *pile*; *beam* (*ha-d$_2$íRi, *turus; cf: PFM *qelud$_2$) and a *thatched roof* (usually sago leaf) (*qatép) with a *ridgepole/beam* (*bubúŋ) and *rafters* (*kásaw). There was a *hearth, stove* (*d$_2$apúR) with a *storage shelf, rack above hearth* (*páRa). Entry to these raised dwellings was via a *notched log ladder* (*haRedán). One could sleep on a *hammock* (*dúyan).

The settlement included a *meeting house*; *public building* (*baláy) and a *bachelor's quarters*; *shed* (*kamáliR).

They utilised a shell or stone *adze, axe* (*kiRam, cf: PPH *wásay) with a *handle* (*paRada). (Chinese ˣputhaw *iron axe* is reasonably widespread, but clearly a loan.) Building methods now involved *attaching, joining* (*+pil; see also: PPH *tá+kip), *joining along the length* (*+kit), *tying, clasping together* (*kaput), *rasping* (*parud); and materials included the *board, plank* (*papan), *stake, nail* (*páku?), *glue, paste, plaster, caulk* (*da+lit), and *wedge* (*kálaŋ). People slept using a *wooden headrest, pillow* (*qalun-an, *quluŋa).

12.3 PHN

The PHN dwelling appears to have had longish *eaves* (*surambi?) with a *bamboo gutter* or *rain shield* (*kulub) that gave additional *protect(ion)* (*lind$_2$uŋ) from the elements. They could make partitions or rooms within the house by a *wall, screen* (*d$_2$iŋ+d$_2$iŋ), more structural integrity with a *cross-beam* (*átaŋ) and a *floor beam* (*kalasaR) on which *floor(ing)* (*lan+tay; cf: PPH *daqtaR) was laid with interspersed *floor slats* (*saléR; cf: PSP *sa?eR). They would *cut-down/off* (*tebá?) nipa reed, *Nypa fruticans* (*nípaq) and other flora for both roofing and walls and *fell, topple* (*tebéŋ) trees or bamboo for larger supports. Means of *chiselling* (*paqét) allowed a finer, smoother touch to the finished product. The *saw* (*lagádi?) was a later Indic innovation that made woodworking much easier, but did not figure in any early building techniques.

They made use of the *hook* (*ka?+wit) and a *wooden tray, table* (*d$_2$úlaŋ) within the house, a *fence, enclosure* (*pager) outside and possibly around their fields, and developed the *suspension bridge* (*ki+tey, *tey+tey) as a means of negotiating the rough terrain in which they lived (see section 1.4).

12.4 PPH

PPH residents made greater use of the *space under the house* (*síduŋ) and developed additional forms of *shelter, hut* (*há+buŋ; cf: PSP *lawiR).

13. EVIDENCE FOR BRAIDING

There is at present only the evidence given by the etymologies *string, rope* (*CalíS) (see section 2) and *rattan* (see section 4) for this technique in PAN.

Two etyma indicate the continuation of PHF *braiding* (or plant used, *Donax cannaeformis*) (*beN+beN) and *mat* (*Sikám).

However, there is ample support for this technique in PMP: *braid, plait, weave mat* (*añem, *añam), *plait, make with the hands* (*batuR), *wind around repeatedly* (*+bej), *mat* (*tepiR, pos: *tipeR) and *mat, cover(ing)* (*hápin).

Again, by PHN times the skill was well known: *braid, weave (mat)* (*lája), *plaitwork* (*kalamata), *braid* (*apíd), and *wind around, tie* (*bed+bed). Products included: some types of *basket* (*bákul, *balúlaŋ), a *large basket* (*baŋkat), a *small basket* (*alát), another kind of *small basket* or *a woven cover* (*súkup), the *winnowing basket* (*bijáu, *níRu) (see sections 5 and 5.3), a *bag of plaited palm leaves* (*bayú?uŋ), and a few kinds of *mat* (*a(m)bék, *tepa).

PPH speakers also made *twine* (*lúbid) and a *small basket or its likely contents* (*abú+but). Similarly Indonesians have an adjective for *loosely woven* (of a mat) (PWI *kazaŋ).

14. EVIDENCE FOR WEAVING

At the highest level, we find no universally-distributed etyma for weaving equipment. There is one reconstruction for PAN that may be indicative that the technique was known: *blanket* (*qules) with a disjunctive doublet[13] *upper garment* (*Hules).

As for the reconstruction of any PMP weaving terminology, Blust (1977a:33, 35) points out that there is no linguistic evidence that the loom was part of the Proto Oceanic cultural equipment. So we are unable to establish on etymological grounds that this trade was practised.

At the PHF level, three terms indicate that weaving was a skill in the west: *weave (cloth)* (*tineʔun), *loom* (*tenunan), *shuttle stick* (*balíja).

At least 4,000 years ago, PHN weavers were applying their trade: *weave* (*hábel), *set up warp on a loom* (*haʔnay), *yarn*; *skein* (*lábay), *weft* (*pakan), and *batten of a loom* (*li(n)ji). They kept such *woven material* (*ha(m)bél) in a *bundle (of cloth)* (*bantal). It is not clear when *cotton* was introduced (PHN? *kápes) because forms like ˣkápas < Prakrit kappasa and ˣkapuk appear to have spread by borrowing.

In the Philippines there are several etymologies for *blanket* (e.g. PPH *kúmut; PSP *kayab), which indicate that the skill continued.

15. AUSTRONESIAN SEWING

Woven items might need repair or enlargement, and sewing offered an opportunity to continue to utilise materials that would otherwise be discarded or put aside. For PAN, we see this process: *needle* (*ZáRum), *thread a needle* (*CuSuR), and *patch* (*Capel). However, the word for *sew* is more limited (PHF *CaSíq), since another form appears to have competed with it during PMP times: *sew, patch up (clothing)* (*záqit). Reconstructions for *thread* (PHN *běnáŋ) and *thread; needle and thread* (PPH *tanud) are even more restricted. But there can be little doubt that sewing persisted from the earliest times.

16. AUSTRONESIAN CLOTHING, DRESS AND ADORNMENT

At the PAN level, we have mentioned a form that could have meant *upper garment* or possibly *covering* (*Hules), but evidence for this overlaps with forms meaning *blanket* (see section 14).

By PHF times, people dressed in either the skin of *animal, hide, leather* (*qaNiC, *kaLiC) or a *skirt, sarong* (*tápiS), and they may have had a *bracelet* (*geláŋ) for a decoration.

The PMP form for *skirt, sarong* (*tapis) is reconstructed with a different final consonant from its PHF counterpart. A word for *fabric* (*taluki) is also found, but could as much be the product of pounding bark or fibres as of weaving. Natives carried smallish belongings (such as the ingredients for a betel-chew mixture, see section 28) in a *pouch* (*kantuŋ) – this word has been extended to *pocket* in several daughter languages.

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13 Disjunctive doublets or disjuncts (dsj) are reconstructions that share overlapping cognate sets, i.e. where given language evidence is proposed to support two or more reconstructions (see Blust 1980a:25f.).

Did PHN groups, who had expertise in weaving, step backwards with the *loincloth, g-string* (*baháR), or is this form much older? They were aware of *nudity, exposure of the body* (*pu+kas). Against either sun or rain they utilised an *umbrella* (*páyuŋ).

17. EVIDENCE FOR POTTERY PRODUCTION

In this domain, the linguistic evidence lags well behind the archeological records. Although pottery dating back several millenia is found throughout Austronesian territories, and in some areas has flourished (see Blust (1977a) for references to the Lapita tradition), at the PAN level, we only encounter a word for *clay* (*daRéq). We have already mentioned a *cooking utensil* (for scorching) (PHF *qaŋeliC), an *earthenware jar* (PHF *balaŋaʔ; PPH *baŋaʔ) (see section 9.1), and PMP *cooking pot* (*kúdʒen) (see section 9.2). PMP groups might have eaten from a *cup, bowl* (*maŋkuk).

18. EVIDENCE FOR METALLURGY

At the earliest stage, there is no evidence that the Austronesians were aware of or produced metal. However, PHF speakers appear to have a word for *metal* (*bari[]) which may have been used in producing the *machete, sword* (*malat). Two forms refer to *gold* (-coloured) (*buláwan) and *gold* (coin) (*baLituk). They may, therefore, have known metal, although they may not have worked with it.

However, by the PMP level they probably knew how to *temper metals* (as when water and heat meet) (*sebuh).

A word for *rust* (*karat; cf: *kaRáC *bite*) may confirm PHN knowledge of metals. By 4,000 years ago, Western-Austronesian groups were aware of *blacksmithing* (*sal+sal) (cf: *cal+cal *hammer*). They used the *anvil* (*landas-an) and probably worked *iron* (*besi), *lead; tin* (*timaRaq), *gold* (above), and possibly *silver* (*pírak). They may have produced *wire* (*kawad), strands of which could be made into a *ring* (*ciŋ+cin). They later learned of *copper* from Indic peoples (ˣtumbága). Anyone good at this trade (or the others discussed above) was referred to as a *craftsman* (ˣpanday), but this is another Indic loan.

19. PAN BARTER, TRADE, COMMERCE AND NUMERACY

Early Austronesians did not simply *barter* (*báliw; cf: PHF *sáliw), they had a specific form for *buy* (*bĕlí), and a derivation which meant *sell* (*pa(R)-bĕlí). These etyma do not necessarily imply the existence of a monetary unit, but based on their grammatical affixes they indicate DIRECTION OF TRADE: *-en *towards actor* (*beli-en) and *Si- *away from actor* (*Si-pa(R)-beli). With the relative bounty of their surroundings, they could *choose, select* (*píliq) or ask for *another of a different kind* (*dúma).

Their ability to engage in commerce was enhanced by a decimally-based number system: *one* (*ʔe+sá, *i+sá, *a+sa, *ta+sa), *one (unit of 10, 100)* (*+sa), *two* (*dʒuSá), *three* (*tĕlú), *four* (*Sĕ(m)pát), *five* (*limá), *six* (*ʔĕném), *seven* (*pitú), *eight* (*walú), *nine* (*siáw), *ten* (*púluq), and the interrogative *how many; how much?* (*pijáH).

19.1 PHF

Within PHF times there were two words for *count* (*Hiáp, *bílaŋ) and derivations of some of the numerals were apparently used verbally or existentially, that is, *there are*: *three* (*ta-tělú), *four* (*Sa-Sěpát), *six* (*a-eném), *seven* (*pa-pitú), and *eight* (*wa-walú). Items of trade could be *many* (*Săduq) or *all gone*; *to use up (all)* (*ʔamin). One could, of course, *borrow* (*Sedám; cf: PHN *huzam) what one could not buy or barter.

19.2 PMP

PMP commerce now involved the number *hundred* (*Ratús) and another word for *count* (*qi(n)tuŋ). One could buy *one only* (*ma-isá) or ask for *some, some more* (*balu).

19.3 PHN

PHN counting reached the *thousand* mark (*Rĭbu; less likely *rĭbu). Some form of money must have been involved so that one could *pay* (*báyad$_2$). If funds were *lacking, not enough* (*kúraŋ) one could ask for a *discount, reduced price* (*táwad$_2$) or else run up a *debt* (*qútaŋ). If that was not paid as per the agreement, one might *forfeit* (*le(b)+leb) the goods. By these times pawning must have been introduced since we encounter a word for *redeem* (*těbús). In any event, it was not wise to *trick, cheat* (*dáya[ʔ]) one's clients.

Western Austronesians probably moved about considerably more to *peddle* (*láku^{ʔ}, *zazáh) their wares. Trade was probably still involved for items of *equal, equivalent value* (*bali). Besides products of their gardens, the forest or the sea, items that they weaved, braided, potted, smelted, or otherwise manufactured, their commerce may have involved *ivory* (*gádiŋ) or *rock crystal* (*kináŋ). If one tried to get another's attention, he would *touch lightly* (*kubít) on the shoulder.

19.4 OTHER DEVELOPMENTS

Other developments included the innovation of a PPH word for *nine* (*siyám, *sa-siám), *one unit of (10, 100, 1,000)* (*ma-, *saŋa-), and *count* which also meant *think*; *consider* (*ísip). In Malay and related languages the numeral for *seven* (PWI *tu(n)Zuq) was innovated, based on the word for *point*; *index finger*.

20. PAN KINSHIP AND SOCIAL RELATIONS

We are fortunate that all major terms for ascending and descending kinship patterns are available to us, and have been so since Blust (1979 and 1980b). Starting with two generations above EGO (*akú) they called *grandfather* (*aki; cf: PHN *laki) and *grandmother* (*ba^{ʔ}i); there was also a VOCATIVE for *grandparent* (*bubu). The word for *ancestor* (*a(m)pu; cf: PMP *ta(m)pu) has also come to mean *master* or *owner* in some daughter languages (cf: PMP *tumpu).

The forms for the next generation are: *father, uncle* (FB) [reference] (*áma, *tama; [children's VOC form] *mama; cf: PMP *amáy [VOC]), *aunt* (FZ), 'female father', also *nursemaid* (*aya), *mother, aunt* (MZ) [reference] (*ína, *tina; cf: PMP *na+na [children's VOC form]; *ináy [VOC]). Similar to Aboriginal Australia and other societies it appears that

mother's side was the WIFE-GIVER: *uncle* (MB), *parent-in-law* (WF) (*ma(n)tuqáS; cf: PMP *túRaŋ).

For one's own generation, we find that AGE mattered: *older sibling* (*kaka; cf: PMP *aka), *younger sibling*, which also came to mean *kinsman* (*u-Sáji; [VOC] *Sajíʔ; cf: PMP *tua(n)ji), and a term for *twins* of the same sex (*Sabij). There may have been but one word for *spouse*, *wife*; *husband*, which also formed the verb to *marry* (*qasáwa), but some evidence indicates there may have been a distinguishing term for *husband*, male counterpart (*báNaS; cf: PHF *lakay, which also meant *old man*). The product of such a union was called *child*, *offspring* (*aNák; cf: PHF *LaLak).

20.1 PMP

By PMP times, they recognised a *clan* as *1/4 social subdivision* (*suku) with a *chief* who was either a *clan leader* or *priest* (*dátuʔ), who was addressed with a *title of respect* (*puaŋ) and who had the power to convene an *official gathering* (*pened). Territorial rights were now established with a *boundary*, *border* (*supu).

One's *lineage* was his *bilateral kin* (*Rumaq, the word for *house*). Great respect was shown for one's *ancestors* (*anduŋ), with terms for REFERENCE (*e(m)pu) vs ADDRESS (*a(m)puy). There was a reciprocal term for *grandchild*; *grandparent* (*ápu), with a specific derivation for *grandchild* (*maka-empu).

Similarly, special words now existed for *uncle* (FB) (*ama-en, who would serve in his role if father was absent or dead) and for *male sibling* (*ñaRa), *female sibling* (*betaw), and *affinal cousin* (FZS, ZH) (*laya).

20.2 OTHER DEVELOPMENTS

Central Malayo-Polynesian peoples recognised the relationship of *nephew* (ZS) and *child-in-law* (DH) (CMP *dawa).

20.3 PHN

PHN speakers kept most of the inherited vocabulary, but used the VOCATIVE SYSTEM more extensively which involved word-final accent with the addition of a glottal stop [-ʔ], -h, or velar nasal [-ŋ], as in: *mother!* (*ináʔ, *ináH, *náŋ), *father!* (*amáʔ, *amáH, *amáŋ), *grandparent!* (*e(m)púʔ) or the innovation of a *term of address to males* (*azuq). Other forms that appear to be innovations at this level include *father* (*bapaʔ) and *grandfather* (*ábuʔ).

The affinal system appears to have become more defined: *sister-in-law* (*hí+paR), *brother-in-law* (*bayáw), and *sibling-in-law* (*birás). Similarly, obligations upon the death of one's kin were recognised: *widow* (*bálu), *orphan* (*ílu; cf: PNP *ulíla), and *nephew*, *niece* (*um-anak-en; lit. *will become one's child*).

It was socially acceptable (if not obligatory) for a woman to *have many children* (*sanak). With a growing society it became difficult to *know*, *recognise* (*kilála) everybody, and when groups became too large to survive in a *settlement*, *village area* (*lebúq), it became necessary to *part*, *separate*, *divide* (*cěray). One could *drop by*, *pay a visit* (*lawah) to relatives or

friends elsewhere. Eventually, such affiliated communities may have formed a *kingdom* (*hádi?), but this may have been relatively later in Western Austronesian history.

21. PAN CULTURAL TERMINOLOGY

Austronesian society was split into social halves by a *moiety*-system (*báliw) and each person had a *name* (*ŋájan). Akin to the distinction between inclusive *we* (*kitá) vs exclusive (*kamí), they appear to have recognised themselves as *person, human being* (*Cáu; cf: PMP *táu-matáq, PSP *e+táw), in contrast to an *alien person*; *outsider (e.g. Negrito)* (cf: PMP *qaRta).

Within the group, one had to correspond to social codes according to a *shame* (*Siaq) system. To break this one might get a *pat, light slap* (*+pik), but worst was *being ashamed, losing face* (*ma-Siaq; cf: PSP *ma-heyaq), a feeling of extreme emotional discomfort, such as if, for example, one committed a *sin, error, mistake* (*saláq) such as *stealing* (*Cákaw), which must have drawn strong disapproval. People developed bonds by *giving* (*běRáy; cf: PPH *tudul, *dúlut), and one would hardly go anywhere without having a *companion* (*duma) to *escort, convey* (*Sa(n)téd$_2$) him or her.

21.1 PHF

Blust (1977a: 33) discusses Formosan cognates of *write* (*súrat; note disjunct *súRat, Tag súgat *be pierced, wounded*). This etymon may be more appropriately attributed to etching or pricking associated with *tattooing* (*be+Cik), which was practised by (or before) PHF times, cf: PAN *+rit *scratch a line*; PMP *tebék *pierce, stab*, *tusi *draw* – later extended to *writing*). Since there is no supporting evidence for any Austronesian syllabary (all those currently in use are of Indic or European origin; note also ˣbasa *read* from Sanskrit), the products of such an art would probably have been pictographic or ideographic at best.

21.2 PMP

Some PMP terms relevant to interpersonal relations include: *beckon, wave* (*qalep), *sucking noise made to signal s.o.* (*misik), *lie, deceive* (*baRiq, *bali), and *beg, ask for* (*ŋeni). Approval fell upon the *lucky* (*ma-nuRuq) and disapproval on anyone *stubborn, obstinate, unyielding* (*tegel, *te(ŋ)ger).

21.3 PHN

PHN may have had a distinction between *custom, tradition* (*ugali?) and a *command, order* (*súRuq) given by someone in authority. *Disagreement* (*tumaŋ) was not encouraged, one was expected to *bow the head, nod* (*tuek) and comply. If someone would *deny, refuse to accept or believe* (*uŋkir), he was branded as *proud, haughty* (*a(m)buŋ). Society did not appreciate anyone who would *show off*; *pretend* (*asih).

22. RELIGIOUS BELIEF, TABOO, RITE AND RITUAL

PAN peoples believed strongly in the *spirit* (*qaNíCu) world. By the PHF period a *taboo* (*paliSi; cf: PHN *mali?, PPN *tabu) system arose. Blust (1983) makes a case that the prefix class *qali-, *kali- marked *forbidden* (*laRaŋ) objects or phenomena.

Within PMP times, among those things feared or revered were an *apparition, glimpse of s.t.* (*ilap) and possibly even a *shadow, reflection* (*qaninu[ŋ]).

Some of the PHN peoples had a *transvestite shaman* (*asug) who interpreted any *misfortune, catastrophe* (*geraq). For an individual transgression there was the sign of a *swollen belly for breaking the respect taboo* (*busuŋ) and for the community, the severe *punitive storm; hail storm* (*baliw). There may have been a form for *prayer* other than the widespread loan ˣazi, such as *ask pardon* (*ampun).

In PPH communities they would *blame, find fault with* (*básul) a transgressor, who was expected to *regret; take back* (*báwi?) his action.

23. DEATH AND BURIAL

Based on current practices whereby a corpse is wrapped in a mat and put in a tree, *cave* (PMP *liaŋ, see section 1.3) or other high place until it decomposes, we can surmise that from the earliest times, what they would *bury* (PAN *CaNém; cf: PHN *lẽbéŋ) were the bones of the deceased. Archaeological evidence suggests that jar burial was the norm. There is a PHN etymology for *body fluid from a corpse* (*saRu) which would indicate a tradition where the *corpse* (*baŋkay) was kept long enough to decompose. It is not until PPH that we can reconstruct a word for *coffin* (*luŋún).

24. PAN CLEANLINESS, GROOMING AND PERSONAL HYGIENE

Austronesian peoples had a definite preoccupation with personal hygiene, such as *wash, rinse, bathe* (*Se+ñáw; cf: PHF *Naw+Naw, *raw+raw) to remove *body dirt, dandruff* (*dakíH) or anything that was *dirty* (*ma-qilaŋ).

PHF speakers removed *particles of food stuck in teeth* (*tiŋáS) and would *wash, rinse* (*SúRas) their clothes or utensils.

PMP people had another term for *wash up (hands)* (*bulú) which differed from *wash* (*buRiq). They would *gargle*; *rinse the mouth* (*+muR), remove *earwax, cerumen* (*tulíh, *tilu), and make use of various kinds of *comb* (*saRu, *saut, *suat; cf: PNP *s/ag/ay+say, PSP *sul+day). For tidiness around the house or yard they developed the *broom* (*sapu; cf: PSF *?aSik *sweep*). They would *squeeze, wring out* (*peRáq, *peRés) wet clothing.

PHN groups had a *fine tooth comb* (*sújud), with which they would *delouse, catch lice* (*sik+sik; cf: PPH *hi(N)-kutu, *sukay), which they would then *crush with the thumbnail* (*tedes, *tedis). They would *bathe* (*díRus; cf: PPH *díRu?), after which they would *wipe* (*páhid; cf: PPH *púnas) themselves dry.

25. PAN SICKNESS, PATHOLOGY AND CURES

Among the ailments which were recognised in PAN were *goiter* (*biqel) and a *wound*; *open sore* (*ma-Nuka[H], *LukaH), which might develop *pus* (*nánaq). Certain conditions would cause one to *shiver*, *tremble* (*+ter; cf: PHF *keR+keR, PMP *+tir; PHN *gir+gir) or *hiccough* (*se(n)+du?).

25.1 PHF

Some infirmities identified by PHF speakers included a *scaly skin disease* (*kurap) which might *itch* (*ga+Cél; cf: PPH *katél), or a *blister*; *callus*; *corn* (*buCu), which might *smart*, *sting* (*Sa-pějíq; cf: PMP *pějes). Physical defects noted were: *blind* (*buCá), *lame* (*píLay), *hunched over*, *bent with age* (*be(ŋ)+kut; cf: PMP *buŋ+kut), and *hump*, *hunchback* (*bú(ŋ)kul). Those very ill would *groan*, *moan* (*daRiŋ).

Not much in the form of remedies is reconstructable at these early stages apart from some form of *massage*, *squeeze* (*pesél; cf: PPH *hílut) and the use of a *cane*, *staff*, *walking stick* (*su(ŋ)kud; cf: PHN *tu(ŋ)ked, *tu(ŋ)kad).

25.2 PMP

PMP people would rather be *healthy*, *feel fit* (*se(ŋ)+ger) than be in *pain*; *feel sick* (*ma-sakít). Nevertheless, they suffered from a *skin disease leaving white patches* (*panaw), *ringworm*, *herpes* (*bu?ni), and *cramp(s)*, *stiffening of limbs* (*+keŋ). If someone had a *swell(ing)*; *abscess* (*baRéq) or *boil*, *abscess* (*bisul; cf: PHN *piRsah, PPH *peRsah), it would be *squeezed* (*pis+pis, *pes+pes) until the pus would *squirt out* (*pe(R)+cit; cf: PHN *le+sít); this often left a *scar* (*biras; cf: PHN *ulat, *kulad). Some physical afflictions noted were *hoarse* (*pá+Raw), *cataract* (*buláR; cf: PHN *buléR), *deaf* (*běŋél), and *stammer*, *stutter* (*gap+gap).

25.3 PHN

PHN groups had ear problems, *deaf(ened)* (*běŋéR) or *deaf*; *mute* (*bisu; cf: PSP *e+máw *mute*), and some involving the eyes: *blind in one eye* (*piség; cf: *+cek), and *crosseyed* (*zeliŋ, *zuliŋ). They realised that there were *intestinal worms* (*gelaŋ) and that some diseases were *contagious*, *spreading by contact* (*za(ŋ)+kit). A *cough* (*íkej, *batúk; cf: PSP *qebúh) could leave a person *weak*, *tired*; *worn-out* (*lumaq, *luyah). To these they had no remedy.

More importantly, for a *bone fracture*; *crooked (of limbs)* (*lepuq) they had a *bandage*, *wrapping* (*bárut). For a *cut*, *wound*, *scar* (*palí?; cf: PPH *pí()lat, PSP *pila?), they would *stanch*, *stop the flow of blood* (*am+pet). For a *lump*, *bump* (*bukél), *scab* (*keRáŋ; cf: PSP *keRán), or *cracked*, *peeling (skin)* (*kurisiŋ) they had some form of *medicine*, *poultice* (*tambar; cf: PWI *ubat, PPH *udu[?] PNP *ágas, PSP *bulúŋ). *Alum* (*tawas) may have been one natural product used medicinally.

25.4 PPH

Some PPH etymologies that probably have earlier attestations include: *groan in pain* (*aRúy), *ouch!* (*adáy), *pock marks; childhood illness* (*abas), *growth in mouth of animal* (*hábas), *swell(ing) of stomach due to gas* (*lebág), *tropical ulcer* (*kuyapés), *blinded by mote in eye* (*púliŋ), and *choke on fishbone* (*bĕkéR).

26. WARFARE

In case of an unforeseen attack, PAN speakers might *hide* (*-buNi, *táRuq), but *bravery* (*RaqaNi; cf: PHN *baRáni) was considered a high virtue. As we observed with regard to HUNTING (see section 8), however, they had the *bow and arrow* with which they could *kill* (*paCéy, *pa-ka-maCéy) their *enemy* (PHF *busuR, cf: *bow*). By PHF times, some form of *pointed weapon* (*bakál) was also available. At least some battles were based on *revenge* (*báles).

By the PMP period, they learned how to *use a blowpipe* (*le+put; cf: PHN *se(m)+put, *sumpit blowgun*); the dart was dipped into *poison* (*upas). Additionally they had the *spear* (8.2) with a *goat hair decoration* (*bandaŋan) and a form of *round shield* (*tamíŋ). In an all-out fight, when the supply of weapons was consumed or unavailable, they might *hit (with stick or club)* (*palu?) or *throw (stones)* (*tuda?).

The Malayo-Polynesians in their drive across vast new territories became the aggressors. They would *run after, pursue* (*búRaw; cf: PHN *úsiR) those who fled, and might even *plunder, rob* (*raŋ+pas) a defeated village. They could turn any *alien* into a *slave* (*qata),[14] who might later be *set free* (*lumbar) under conditions of faithful servitude or the acquistion of personal wealth.

Such aggression continued into PHN times as evidenced by terms such as: *annex, subject* (*kabiR), *provoke a fight* (*atis), *surround, besiege* (*kepuŋ, *kepuq), *go head-hunting* (*kayaw), and *cruel* (*baŋis, dsj: *beŋis). An enemy who did not *run (away)* (*laRíw), might be *allowed (to live)* (*bihár) as a *slave* (*qudíp-en *will live*; cf: PNP *qadípen).

Western Austronesians developed a *rectangular shield* (*kalásag). They also must have made use of a knife or sword since they had a term for *hilt* (*daŋanan). One curious correspondence set that Dempwolff (1938:25) marked as a loan is ˣbedíl *gun*, which again indicates that our method can only take us so far!

27. RECREATION AND PLAY

Several forms are found at the PHF level that imply *play* (*qayám),[15] *relax, spend time* (*pa-Súay), and *tickle* (*Lek+Lek). This latter word is reflected by several disjuncts and doublets in PMP *tickle* (*gidik, *gitik, *kitik, *kidi, *giri), probably reflecting some preoccupation with this as a source of amusement.

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14 This reconstruction (*qata) is a doublet of *qaRta, in section 21.

15 While this form may appear to be a doublet of *qáyam *domestic animal*, Philippine evidence suggests that it is distinguished by accent, i.e. *qayám *to play*.

Malayo-Polynesians would *sing in unison* (*saRup), and by – or probably well before – PHN times they would *dance* (*sáyaw) and *whistle* (*sihul). PHN *pinch* (*kedút) may indicate a less pleasant form of fun.

COCK FIGHTING was probably a late development. Although there is PMP *natural cockspur* (*tada) and *cock, rooster* (*laluŋ), it was probably not until the PHN period that the sport developed: *cockfight* (*sábuŋ), *wrap-on cockspur for cockfight* (*buláŋ), *artificial cockspur* (*tázi). Although these forms are widespread in the west, they often have reflexes associated with borrowing rather than inheritance, so the antiquity of this activity is far from established.

Although all peoples have SEXUAL TERMINOLOGY, it may be a matter of some interest how far we get in this obviously ancient activity. At the PAN level, reconstructions include: *woman, female* (*báHi, *ba-báHi; cf: PMP *b/in/áHi, *ba-b(in)áHi, PSP *libun), *male* (*ma-RuqaNay; cf: PMP *láki, PHN *la-láki, PSP *e+séR), *penis* (*qútiN; cf: PHN *bú+tuq, PPH *lúsi?), and the Austronesian *nose or sniff kiss* (*Sajék). For PHF, we find: *sleep with* (*Súlij), *erection* (*qeCúR), *sexual intercourse* (*qiút), and *pregnant* (*maliqi) [related to *taboo* in section 22 ?]. Surprisingly, the earliest well-attested cognates for two words are PMP *vagina* (*púki?; cf: PHN *betíq; PNS *bedíq) and *embrace, hold* (*$d_2$akép). At the PHN level we have *maiden, young girl* (*d_2-ad$_2$áRa[h) and the previously-mentioned *transvestite shaman* (*asug). At the PSP level there is the affliction of *having only one testicle* (*abíl).

28. OPIATES: BETEL-CHEWING AND ALCOHOLIC BEVERAGES

An early and widespread form of social or personal entertainment included PAN *betel nut* (*buáq) and *lime (for betel quid)* (*qápuR). A disjunct of the latter occurs in PHF *betel-chew, quid* (*apuR). Continuing this tradition, there is PMP *chew* (but not intend to eat) (*mamáq; cf: PPH *ŋa?+ŋa?; PSP *mam(a)qen *areca nut*). At the PHN level we find *betel-leaf* (*Rawéd), *betel pepper/leaf* (*búyu?), *betel nut case or box* (*salapa?), and *alum* (*tawas). In the southern Philippines there is a form for *prepared betel chew mixture* (PSP *ti+lad).

Although we encounter PHF *intoxicated, drunk* (*ma-buSuk), this may have referred to the mild high obtained from betel. We certainly have no solid etymology for any form of alcoholic beverage until PHN *ferment(ed)* (*bahál), *palm toddy/wine* (*tubá?), and *yeast; rice wine* (*tápay). Widespread loanwords in this domain include the word for *liquor* (^{x}árak) from Persian and *opium* (^{x}apyan) from Hokien.

29. COLOUR TERMS

In their now classic monograph, Berlin and Kay (1969) outlined stages in cultural development based on the recognition of colours. PAN was clearly STAGE 1 with the recognition of *black* (*ma-qitém) and *white* (*ma-putíq). Variations on the former were noted as *dark(ness)* (*$d_2$em+$d_2$ém, *+Dem, *lem). They also recognised *mottled, spotted* (*+Cik), probably related to the etymology for tattoo (see section 21.1). Although some languages use a cognate of *raw, unripe* (*ma-Hátaq) in the sense of *green*, it is not a true colour term (see section 9).

PHF is curious in that a word for *green* (*ma-ilem; cf: PSP *luhnaw) is reconstructed, suggesting STAGE 3, but no etymology is known for *red* from STAGE 2 earlier than PMP (*ma-iRaq, *purá[h]; cf: PSP *puláh). One form indicated a *dark(ened) shade* (*kuCem), while others continued specifications of *black*: *shadow*; *shade(d)* (*Lauŋ), *dim, obscure, dark* (*qu+Dem).

With the introduction of terms for *red* (above) and *yellow* (*ma-kunij), PMP could be characterised as STAGE 3. A competing form for *white* (*burak) came into use, along with several terms referring to *pale, albino* (*balar; *bulan, cf: *moon*; *bulay). Similarly darker hues were covered by forms such as *dark, obscure*; *black* (*ti+Dem) and *dark* (*d_2e+$d_2$em). Mixture of the two was designated as *striped, streaked* (*ba+rik).

No new colours appeared to be added at the PHN level. A doublet developed for *black* (*pitem), as well as forms for *dark, black* (*qi(n)+Dem, *ti+lem) and *deep black, shiny black* (*li(n)+tem). Alternate words were also used for *red* (*baRaq; *dě+Ráŋ also *dry*). Animal colours could be characterised as *spotted, striped* (*ba+laŋ), *spotted, dappled* (*pan+tek), or *striped* (*buriŋ, cf: *charcoal*). A word was also developed to describe *discoloured* (as skin over a bruise) (*baŋ+baŋ).

30. PAN SMELLS AND AROMAS

If the Austronesian eye was not discerning in terms of colour, the daughter languages surely reflect an ancient and not-inconsiderable olfactory expertise, that is, PAN *smell, sniff* (*Sajék also *kiss*). A monosyllabic root is found in many etymologies designating *smell of [x]* (*qaŋ+), as in *stink, stench, foul-smelling* (*qaŋ+Sit) or several of the etyma below. Another monosyllabic root is used in some words for *stench* (*+tut). In contrast, they distinguished *fragrant* (*baŋSiS).

At the PHF level we encounter: *stench* (*qaŋ+suH), *stench of urine* (*qaŋ+seR), *stench of putrid urine* (*laŋesej), *odour, stench (of fish/blood)* (*Laŋ+si?), *stench (as of spoiled meat)* (*qaŋ+Ru), and *strong smell of fish* (*qaŋ+RiS).

Within PMP times there was: *smell, odour* (*báhuq; cf: PHN *bahu-an), *smell vile* (*maŋsit), *stench* (*aŋ+(e)lem), and *fetid, foul-smelling* (*qaŋ+eliR, *qaŋ+iR).

PHN added to this inventory words for *having a putrid smell* (*baŋhaw) and *stench of sweaty armpits* (*aŋ+sej, *aŋ+ceŋ).

31. CONCLUSION OF OUR VOYAGE

Our time trip has come to an end, but surely not our need for continued research and refinement. Several of the reconstructions taken at face value here are justifiably disputed by other scholars in this volume. There is still a greater task at hand for the many that survive the test of time and our method. Those natural phenomena (i.e. flora and fauna) that are correctly placed at either the Austronesian or Malayo-Polynesian level should allow us to confer with geologists, meteorologists, botanists, anthropologists, archaeologists and other such researchers as to their provenance in prehistoric times. In other words, if we can confidently assume that a corpus of reconstructions is valid, then this would be significant in isolating rather clearly the homeland for that level. For example, whichever area some six to eight thousand years ago had plants like bamboo, rattan, sugarcane, foxtail millet, *Mangifera*

indica, *Dracontomelum edule*, *Athyrium esculentum*, *Urena lobata*, *Solanum nigrum*, *Pandanus tectorius*, which also had a monsoon wind and was exposed to the sea with its tidal changes, and which teemed with goatfish, mullet, stingray, shark and freshwater eel, or birds such as the hornbill, dove, pigeon and wild dove – this should prove to be the Austronesian homeland. However, certain issues must be settled first, such as the appearance of words that seem to indicate an increase of geological and meteorological activity (section 1.2). Do these reflect a change in time or in zone, or are they retentions from PAN and therefore reflect the state of the original homeland? Whatever the answer, we linguists cannot reach it alone, but must rely on a broader range of expertise. The lure of etymological science, however enticing and fascinating, should not let us take another time trip with a **duma* from among our fellow scientists.

ABBREVIATIONS

+	a monosyllabic root is posited
-	a morpheme boundary is posited
/	an affixed form is usually found to occur
-2	full reduplication
ACD	Blust (n.d.a)
AE1	Blust (1980a)
AE2	Blust (1983-84a)
AE3	Blust (1986)
AE4	Blust (1989a)
Bl	Blust (see references)
Ch	Mathew Charles (personal communications, data and correspondence)
CH	Blust (1976a)
CHN	Chinese
CMP	Central Malayo-Polynesian
Da	Dahl (1976)
dbl	doublet
DDO	Blust (1981a)
Dp	Dempwolff (1938)
dsj	disjunct (see Blust 1970:112f., 1980a:25f.)
Dy	Dyen (see references)
DyTs	Dyen & Tsuchida (1986)
Fer	Ferrell (1969)
Gon	Gonda (1952)
HK	Kern (1976)
Hm	Blust (1984-85)
HM	Dyen (1990)
HOK	Hokien
Hs	Blust (ed. 1981)
IND	Indic
LVWL	Blust (1982a)
McF	McFarland (1977)
MHP	Blust (1982b)
MSP	Mexican Spanish
n	note / footnote

Noth	Nothofer (1975)
NS	Blust (1974c)
PAA	Blust (1970)
PA1	Blust (1972c)
PA2	Blust (1972a)
PA3	Blust (1973)
PAN	Proto Austronesian
pc	personal communication
PD	Blust (1980c)
PER	Persian
PFM	Proto Formosan
PHF	Proto Hesperonesian-Formosan
PHN	Proto Hesperonesian (Western Austronesian)
PIN	Proto Indonesian
PKT	Prakrit
PMP	Proto Malayo-Polynesian
PNP	Proto Northern Philippine
PNS	Proto North Sarawak
PPH	Proto Philippine
PPN	Proto Polynesian
PSF	Proto South Formosan
PSP	Proto Southern Philippine
PWI	Proto West Indonesian
Root	Blust (1988a)
SKT	Sanskrit
Sn	Sneddon (1978)
SOC	Blust (1980b)
Tab	Blust (1981b)
Tam	Tamil
Tir	Blust (1992a)
Ts	Tsuchida (1976)
Tum	Blust (1992c)
Voc	Blust (1979)
VRR	Blust (1981d)
WIN	Western Indonesia
Wol	Wolff (1976)
Z=	Zorc (n.d. – fieldnotes, data sheets, file cards or computer files), but see McFarland (1977), Reid (1971), Yap (1977) for data
ZED	Zorc (1979a, 1979b)

APPENDIX

Notes on the alphabetical ordering of this glossary:

1. Letters in parentheses are ignored, but preconsonantal nasals that are unambiguously reconstructed are found in their respective order.
2. A morpheme divison (-) is ignored (e.g. *tam-buRi is in position of «tambuRi»).
3. An infix (/ /) is ignored (e.g. *p/al/aka$^{?}$ is in position of «palaka»).

4. The monosyllabic root symbol (+) is ignored.
5. A glottal stop (ʔ) is ignored.
6. A small letter precedes its capital counterpart (except that *H and *h, *L and *l are treated identically).
7. Accent is ignored (except that in the case of pairs stress on the penult precedes that on the ultima).
8. The order of nasals is: m, n, N, ñ, ŋ.
9. In the case of homonyms, the earliest time-depth comes first.
10. Subscript numbers are ignored (e.g. *d and *d_2 are treated identically).

PPH?	*abaká	Manila hemp, *Musa textilis*	4.4. FLORA	Z=
PPH	*abas	pock marks; childhood illness	25.4 SICK	Bl-Tir,Z=
PHN	*a(m)bék	mat	13. BRAID	Bl-AE1
PSP	*abíl	having only one testicle	27. SEX	Z=
PHN	*ábuʔ	grandfather	20.3 KIN	Z=
PPH	*abú+but	small basket or its contents	13. BRAID	Z=
PHN	*a+búg	dust	1.3 NATR	Bl-PA3
PHN	*a(m)buŋ	proud, haughty	21.3 CULT,EMOT	Bl-AE4
PHN	*a(m)buqaŋ	beetle	10.3 INSECT	Bl-AE1
PPH	*a+buR	drive away, chase	8.4 HUNT	Z=
PMP	*abus	ashes	9. COOK	Bl-AE4
PMP	*a(m)+but	weed, pluck, pull out	5.2 FARM	Bl-AE4
PMP	*ad$_2$amay	plant, *Pipturus argenteus*	4.2 FLORA	Bl-AE4
PWI	*adas	fennell	4.4. FLORA	Dp
PPH	*ádat / ma-	salty	9. FLAV	Z=
PPH	*adáy	ouch!	25.4 SICK	Bl-Tir,Z=
PHF	*a-eném	six	19.1 NUM	Z=
PNP	*ágas	medicine	25.3 SICK	Z=
PNP	*ajamáŋ	shrimp – tiny	3.4 SEA,FISH	Z=
PMP	*aka	sibling – older	20. KIN	Bl-Voc
PMP	*akad$_2$	root	4.2 FLORA	Dp,Dy,Z=
PAN	*aki	grandfather [cf: PHN *laki]	20. KIN	Bl-Voc,SOC,AE3
PAN	*akú	I; 'EGO'	20. KIN,PRO	Dp,Ts,Z=
PMP	*alap	gather, collect [cf: PAN *qalaq]	5. FARM,FOOD	Dp,Z=
PHN	*alát	small basket	13. BRAID	Bl-PA3,Z=
PHN	*aliten	firebrand [dbl: aluten]	9.2 COOK,FIRE	Bl-AE3
PHN	*alub	put in or over a fire	9.3 COOK,FIRE	Bl-AE4
PPH	*alud	raft [Z = PSP *arur]	2.4 BOAT	Bl-Tir,Ch
PMP	*aluja	paddle, row [dbl: *paluja]	2.2 BOAT	Bl-AE1
PHF	*á+luR	flow(ing); channel	1.2 NATR	Dp,Dy,Noth,Z=
PMP	*aluten	firebrand [dbl: aliten]	9.2 COOK,FIRE	Bl-AE3
PAN	*áma	father (F/FB) [reference]	20. KIN	Dp,Bl-Voc,Ts
PMP	*ama-en	uncle (father's brother)	20.1 KIN	Z=
PHN	*amáʔ	father [address]	20.3 KIN	Bl-Voc
PHN	*amáH	father [address]	20.3 KIN	Bl-Voc,Ts
PHN	*amáŋ	father [address]	20.3 KIN	Bl-Voc
PHN	*amaq	eat	9. FOOD	Bl-AE4
PHN	*amaRa	tree sp.	4.3 FLORA	Bl-AE1
PMP	*amáy	father [address]	20. KIN	Bl-Voc
PPH	*am+baw	rat	6. FAUNA	Bl-Tir
PHN	*am+bun	dew; drizzle	1.4 NATR	Bl-AE2
PIN	*amiaŋ	plants with stinging hairs	4.4. FLORA	Bl-AE3#349n
PHF	*ʔamin	all (gone); to use up (all)	19.1 NUM	Bl-VRR,Z=
PHN?	*am+pet	stanch, stop the flow of blood	25.3 SICK	Bl-AE2
PHN	*ampun	ask pardon	22. RITE	Dp,Bl-Tir

PMP	*ánay	termite	10.2 INSECT	Dp,Bl-Tir
PMP	*anduŋ	ancestors	20.1 KIN	Bl-AE4
PMP	*anipa	large snake sp.	6.2 FAUNA,REPT	Bl-AE3
PHN?	*anu?us	smoke, charred	9.2 COOK	Z=,Bl-AE2
PMP?	*arús	smoke, charred	9.2 COOK	Bl-AE2
PAN?	*aNak	child, offspring [alt: *u-aNak]	20. KIN	Ts,Z=
PMP	*añam	plait, weave, braid (mat)	13. BRAID	Bl-CH,Dy,ZED
PMP	*añem	plait, braid, weave mat	13. BRAID	Bl-AE1
PHN	*aŋ+ceŋ	stench of sweaty armpits	30. SMEL	Bl-AE3
PHN	*aŋ+kub	cover [dbl: *RaŋkuB]	9.3 FOOD,PROD	Bl-AE3
PMP	*aŋ+(e)lem	stench	30. SMEL	Bl-AE4
PHN	*aŋ+sej	stench of sweaty armpits	30. SMEL	Bl-AE3
PHN	*apíd	braid	13. BRAID	Bl-AE3
PHN	*apis	rattan	4.3 FLORA	Bl-AE2
PPH	*apítuŋ	tree, *Dipterocarpus grandiflora*	4.4. FLORA	Z=
PMP	*ápu	grandchild; grandparent	20.1 KIN	Z=
PAN	*a(m)pu	ancestor; master [cf: *empu]	20. KIN	Bl-Voc,SOC
PMP	*a(m)puŋ	float	2.2 BOAT	Bl-AE4
PHF	*apuR	betel-chew, quid [cf: *qapuR 'lime']	28. BETEL	Bl-AE3,Hm
PMP	*a(m)puy	ancestor [address]	20.1 KIN	Bl-Voc
HOK	xapyan	opium	28. OPIATE	Z=
PER	xárak	liquor	28. GROG,CULT	Z=
PSP	*arur	raft [cf: PPH *alud]	2.4 BOAT	Z=
PMP	*aRemaŋ	marine eel or fish sp.	3.2 SEA,FISH	Bl-AE3
PMP	*aResam	fern	4.3 FLORA	Bl-AE3
PPH	*aRúy	groan in pain	25.4 SICK	Ch,Z=
PSF	*?aSik	sweep; broom	24. GROOM	Ts
PAN	*a+sa	one	19. NUM	Bl-AE1
PHN	*asih	showoff; pretend	21.3 CULT,EMOT	Bl-AE1,AE4
PAN?	*ásu	dog	6. FAUNA,HUNT	HK,Bl-CH,Hm,Ts
PHN	*asug	transvestite shaman	22. + 27. RITE	Bl-AE3
PHN	*asuntiŋ	plant, *Cassia* sp.	4.3 FLORA	Bl-AE4
PHN	*atáŋ	crossbeam; block, dam	12.3 BLDG	Bl-AE1
PHN	*atis	provoke a fight	26. WAR	Bl-AE4
PAN	*aya	female father, aunt (FZ)	20. KIN	Bl-SOC
PHN	*ayuŋ	monkey	6.3 FAUNA	Bl-AE1
PWI	*azar	instruct(ion)	6.4 CULT	Dp,Dy
WIN	xazar-an	horse [lit. be instructed]	6.4 FAUNA	Dp,HK
WIN	xazi	pray(er); praise	22. RITE	Dp
PHN	*azuq	term of address to males	20.3 KIN	Bl-AE3
PAN	*ba-báHi	woman, female	27. SEX	Bl-VRR,Da,Z=
PMP	*babaw	weed [v]	5.2 FARM	Bl-CH,ZED
PHN	*ba+baw	rat, mouse [dbl: *balabaw]	6. FAUNA	Bl-AE4
PMP	*ba-b(in)áHi	woman, female	27. SEX	Bl-VRR
PAN?	*bábuy	pig	6. FAUNA,FOOD	HK,Bl-Hm,Ts
PHN	*ba+cak	muddy, waterlogged (of ground)	5.3 FARM	Bl-AE4
PHN	*bacuk	hoe, chop up soil	5.3 FARM	Bl-AE3
PHF	*baCaj	millet sp. (e.g. sorghum)	5.1 FARM,FOOD	Bl-AE3,Hm
PMP	*bád2uk	tinder, fungus on sugarpalm sp.	9.2 FLORA,FIRE	Bl-AE3,Z=
PHN	*bagahak	fish sp.	3.3. FISH	Bl-AE4
PHN	*bahál	ferment(ed)	28. GROG	Z=
PMP	*baháq	flood	1.3 NATR	Bl-PA1,Dp,Z=
PHN?	*baháR	loincloth, g-string	16. CLOTH	Bl-PAA,Z=
PPH	*báhaw	cool down (of food)	9.4 FOOD	Z=
PAN	*báHi	woman, female	27. SEX	Dp,Bl-VRR,Dy,Ts
PMP	*bahuq	smell, odour	30. SMEL	Dp,Dy,Z=

PHN	*bahuan	odour, stench	30. SMEL	Bl-AE4
PAN	*ba?i	grandmother	20. KIN	Bl-SOC
PHN	*bakaka	kingfisher	7.3 BIRD	Bl-AE3
PHF	*bakál	weapon – pointed	26. WAR	DyTs
PPH	*bak+bak	frog	6.4 FAUNA	Z=
PPH	*bákes	monkey	6.3 FAUNA	Z=
PMP	*bakhaw	mangrove tree, *Rhizophora*	4.2 FLORA	ZED
PHN	*bak()lad	fish trap	3.3. FISH	Bl-MHP
PHN	*bakúku	fish: sea-bream, *Sparus berda*	3.3. FISH	Bl-AE1
PHN	*bákul	basket type	13. BRAID	Dp,ZED
PPH	*bakúlud	rocky ground	1.5 GEOG	Z=
PHN	*bákuŋ	flowering plant, *Crinum asiaticum*	4.3 FLORA	Dp,Noth,ZED
PMP	*balabaw	rat [cf: *labaw]	6. FAUNA	Bl-AE3#32
PHN	*balának	fish: mullet	3.3. FISH	Dp,Noth,Z=
PHN	*ba+laŋ	spotted, striped	29. COLOUR	Bl-AE4
PHF	*balaŋa?	earthenware jar	9.1 + 17. POT	Dp,Dy,ZED
PMP	*balar	pale, albino	29. COLOUR	Bl-AE4
PHN	*balat	banana sp. [cf: PNP *baRat]	5.3 FARM,FLORA	Bl-AE4
PHN	*balá(n)tik	booby-trap	8.3 HUNT,WAR	Bl-PAA,ZED
PPH	*balátuŋ	mung bean	9.4 FOOD	Z=
PHN	*balaw	timber tree, *Dipterocarpus*	4.3 FLORA	Bl-AE1
PMP	*baláy	public building; meeting house	12.2 BLDG	Bl-CH,Hs,Dy,Z
PHF	*báles	repay, revenge	26. WAR	Ts,Z=
PMP	*bali	lie, deceive [cf: *baRiq]	21.2 CULT	Bl-AE4
PHN?	*bali	equal, equivalent value	19.3 BART	Bl-AE4
PHF	*balíja	shuttle stick	14. WEAV	Dp,Bl-CH,ZED
PMP	*baliji	grass (sp?)	4.2 FLORA	Bl-PAA
PPH	*balíti?	tree, *Ficus* (spirit residence)	4.4. FLORA	Z=
PHF	*baLituk	gold (coin)	18. METAL	Ts,Z=
PAN	*báliw	change, exchange; pay (back)	19. BART	Bl-DDO,Z=
PAN	*báliw	moiety	21. SOC	Bl-PD
PHN	*baliw	punitive storm; hail storm	22. RITE,CULT	Bl-Tab
PMP	*balu	some, some more	19.2 BART	Bl-AE4
PHN	*bálu	widow	20.3 KIN,CULT	Dp,Z=
PAN	*báluj	dove sp., pigeon	7. BIRD	Bl-AE1,Hm,Z=
PHN	*balúlaŋ	basket type; skin, hide	13. BRAID	Dp,Z=
PHN	*bálun	provisions; roll up (together)	9.3 FOOD,WAR	Dp,Z=
PSP	*baluŋtu	rainbow	1.5 NATR	Z=
PMP	*balutu	canoe	2.2 BOAT	Bl-AE3
PMP	*bana?aR	radiance, ray of light	1.3 NATR	Bl-AE1,Z=
PPH	*banabá	tree sp., *Lagerstroemia*	4.4. FLORA	Z=
PMP	*bandaŋan	goat hair decoration on a spear	26. WAR	Bl-AE3
PHN	*ban()lat	fish pen	3.3. FISH	Z=,Bl-MHP
PHN	*ban()lik	slime	1.4 NATR	Bl-MHP,Z=
PHN	*bantal	bundle (of cloth)	14. WEAV	Bl-AE1
PMP	*banua	inhabited territory/human ecosystem	1.3 GEOG	ZED,Bl-Hs,Dy
PHF	*baNaR	shrub, *Smilax* sp. [dbl: *banaw]	4.1 FLORA	Bl-Hm,Ts
PAN	*báNaS	husband, male counterpart	20. KIN,SEX	Bl-VRR,Z=
PHF	*baNaw	shrub, *Smilax* sp. [dbl: *baNaR]	4.1 FLORA	Bl-AE1,Hm
PPH	*baŋa?	earthenware jar or vessel	9.1 + 17. POT	Z=
PHN	*báŋah	pandanus, *Orania*	4.3 FLORA	Bl-AE2,Z=
PHF	*bá+ŋaw	bug, noxious insect	10.1 INSECT	Bl-AE1
PWI	*baŋaw	heron	7.3 BIRD	HK
PHN	*baŋ+baŋ	discoloured (as skin over a bruise)	29. COLOUR	Bl-AE4
PHN	*baŋhaw	having a putrid smell	30. SMEL	Bl-AE4
PMP	*baŋi	cook over a fire	9.2 FOOD,COOK	Bl-AE4

PMP	*baŋi	bait	3.2 FISH,HUNT	Bl-CH,AE4,ZED
PHN	*baŋis	cruel [dsj: *beŋis]	26. WAR	Bl-AE4
PAN?	*baŋkaʔ	canoe, boat	2. BOAT	HK,Li-pc,Bl-CH,Dy
PMP	*baŋkal	tree, *Nauclea orientalis*	4.2 FLORA	Bl-AE4,Hm
PHN	*baŋkat	large basket [dbl: *ba(ŋ)kat]	13. BRAID	Bl-AE1,ZED
PHN	*baŋkaw	spear (barbless)	8.3 HUNT,WAR	Bl-AE2,ZED
PHN	*baŋkay	corpse	23. DEATH	Dp,Noth,Z=
PHN?	*baŋkiriŋ	tree sp. [Akl,Ceb < Ml?]	4.3 FLORA	Bl-AE3,AE4
PHN	*baŋkulis	fish sp.	3.3. FISH	Bl-AE4
PAN	*baŋSiS	fragrant	30. SMEL	Bl-AE4
PHN?	*bapaʔ	father	20.3 KIN	Dp,Z=
PHN	*baquR	trigger of tension trap [cf:*baweR]	8.3 HUNT	Ch,Bl-AE4
PPH?	ˣbaraŋay	canoe	2.4 BOAT	Z=
PHF?	*bari[]	iron, metal	18. METAL	Bl-CH,ZED
PMP	*ba+rik	striped, streaked	29. COLOUR	Bl-AE3
PHN?	*barut	bandage, wrapping	25.3 SICK	Bl-AE2
PPH?	ˣbarútu	canoe	2.4 BOAT	Z=
PHF	*baRaH	embers; red hot	9.1 COOK	Dp,Noth,Ts
PHN	*baRáni	brave; hero [cf: *RaqaNi]	26. WAR	Dp,Noth,Z=
PHN	*baRaq	red	29. COLOUR	Bl-AE4
PNP	*báRat	banana [cf: PHN *balat]	5. FARM,FLORA	Z=
PMP	*baRéq	swell(ing); abscess, boil	25.2 SICK	Dp,Dy,Noth
PMP	*baRiq	lie, deceive [cf: *bali]	21.2 CULT	Bl-AE4
PHF	*baRiuS	typhoon, storm, hurricane	1.2 NATR	ZED,Bl-Hm,PAA
PHN?	*baRiw	tainted, rotten	9.3 FOOD,FLAV	Dp,Noth
PAN	*báRu	hibiscus, *Gnetum gnemon*	4. FLORA	Dp,Bl-Hm,Dy
SKT	ˣbasa[h]	read	21.1 CULT	Gon
PPH	*básul	blame, find fault; regret; sin	22. RITE	Z=
PHN?	*bataq	young [of vegetation]	4.3 FLORA	Bl-AE4
PHN	*ba(t)bat	belly of an animal, tripe	9.3 FOOD	Bl-AE4
PAN	*batúH	stone, rock	1.1 NATR	Dp,Dy,Ts
PHN	*batúk	cough	25.3 SICK	Dp,Noth,Z=
PMP	*batuR	plait, make with the hands	13. BRAID	Bl-AE2
PHN	*bawáŋ	creek, ravine	1.4 GEOG	Bl-AE1
PHN?	*báwaŋ	garlic, onion	5.3 FARM	Dp,Dy,Noth
PHN	*baweR	bamboo spring trap [cf: *baquR]	8.3 HUNT	Ch,ZED
PPH	*báwiʔ	regret; take back	22. RITE,CULT	Z=
PHN	*báyad$_2$	pay	19.3 BART	Dp,ZED,Dy
PHN	*bayáw	brother-in-law	20.3 KIN	Dp,Z=
PPH	*bay+bay	bank, shore; (CPh) sand (NPh) sea	1.5 GEOG	Z=
PAN?	*báyuH	pound (rice); mortar; pestle	5. FARM,RICE	Bl-VRR,Z=
PHN	*bayuR	palm, *Pterospermum diversifolium*	4.3 FLORA	Bl-AE1,Hm
PHN	*bayúʔuŋ	bag of plaited palm leaves	13. BRAID	Bl-AE3,Z=
PAN?	*beCeŋ	millet, foxtail sp. (?)	5. FARM,FOOD	Bl-AE1,Hm
PHF	*be+Cik	tattoo	21.1 CULT	Bl-CH&PAA,ZED
PHN	*bed+bed	wind-around, tie	13. BRAID	Z=
PHN?	ˣbedíl	gun	26. WAR	Dp
PNS	*bediq	vulva, vagina	27. SEX	Bl-NS
PMP	*bej	wind around repeatedly	13. BRAID	Bl-Root
PMP	*bek	rotten, crumbling; pulverised	1.3 NATR	Bl-Root
PMP	*be(ŋ)+kar	split open, blossom	4.2 FLORA	Bl-AE4
PMP	*be(ŋ)+kaR	split open, blossom	4.2 FLORA	Bl-AE4
PMP	*bek+bek	crush by pounding; powder(y)	9.2 FOOD,MOVE	Dp,Bl-PA1
PSP	*bĕkéR	choke on fishbone	25.4 SICK	Z=
PAN?	*be(ŋ)+kut	hunched over; hunchbacked	25.1 SICK	Bl-AE4
PMP	*bĕ+láj	spread out in sun to dry	9.2 FOOD,PROD	Dp,Dy,Z=

PFM	*belbel	banana	5. FARM	Bl-Hm
PAN	*bĕlí	buy	19. BART	Dp,Dy,ZED
PHN	*bĕnáŋ	thread	15. SEW	Dp,ZED
PHF	*benaqi	sand [cf: *qenay]	1.2 NATR	Bl-VRR
PHF	*benSiq	seed (for sowing), seedling	5.1 FARM,RICE	Dp,Noth,ZED
PHN	*ben+tas	hack a passage through	5.3 FARM	Bl-AE3
PHF	*beN+beN	braid	13. BRAID	Da,Z=
PHF	*beN+beN	*Donax cannaeformis* [for braiding]	13. BRAID	Da,Z=
PMP	*bĕŋél	deaf	25.2 SICK	Dp,Dy,Z=
PHN	*bĕŋéR	deaf(ened)	25.3 SICK	Bl-AE2,Z=
PHN	*bengis	cruel [Dsj: *baŋis]	26. WAR	Dp,Noth
PHF	*bĕRas	husked rice	5.1 FARM,RICE	HK,Bl-CH,Hm,Ts
PAN	*bĕRáy	give	21. CULT,BART	Dp,Dy,Z=
PAN	*bĕRék	pig	6. FAUNA,FOOD	Bl-CH,Hm,ZED
PMP	*beRsay	canoe paddle, oar	2.2 BOAT	Dp,Bl-CH,Dy,Z
PPH	*bĕsáy	waterfall	1.5 GEOG	Z=
PHN?	*besi	iron	18. METAL	HK,ZED,Dy
PMP	*betaw	female sibling	20.1 KIN	Bl-SOC
PHN	*betíq	vulva, vagina	27. SEX	Bl-PAA,NS,Z=
PHN	*bĕtúŋ	large bamboo, *Dendrocalamus* sp.	4.3 FLORA	Dp,HK,Bl-Hm,Z=
PHN	*bihárR	alive; allow (to live)	26. WAR	Ch,Z=
PSP	*bíhed	roe	3.4 FISH	Ch,Z=
PHN	*bijáu	winnowing basket	13. BRAID	Ch,ZED
PMP?	*bi+láj	spread out in sun to dry	9.2 FOOD,PROD	Bl-PA2,Ch
PHF	*bílaŋ	count	19.1 NUM,BART	Dp,Noth,ZED
PMP	*biliŋ	turn, veer to the side	2.2 BOAT	Dp,Bl-VRR
PMP	*bilu	fish: trevally, *Caranx* spp.	3.2 FISH	Bl-AE3,Hm
PMP	*b/in/áHi	woman, female	27. SEX	Da,Bl-VRR
PMP	*binaŋa	estuary, river mouth [dbl: minaŋa]	1.3 NATR	Dp,Bl-AE1
PHF	*biqel	goiter	25. SICK	Ts
PMP	*biras	scar	25.2 SICK	Bl-AE4
PHN	*birás	sibling-in-law	20.3 KIN	Z=
PAN	*bíRaq	taro, giant arum, *Alocasia* sp.	5. FARM,FLORA	Bl-CH,Hm,Dp,Z=
PAN	*biRaS	roe, fish eggs	3. FISH	Bl-AE1
PHN?	*bisu	deaf; mute	25.3 SICK	Bl-PA3
PMP	*bisul	boil, abscess	25.2 SICK	Bl-AE3
PMP	*bit	hook	3.2 FISH	Bl-Root
PMP	*bitaquR	tree, *Calophyllum inophyllum*	4.2 FLORA	Bl-AE1,Hm
PMP	*bituŋ	bamboo, *Dendrocalamus* [dbl: *pituŋ]	4.2 FLORA	Bl-Hm
PAN	*bi(n)tuqen	star	1.1 NATR	Dp,Da,Dy,Z=
PAN	*bu	dust	1.1 NATR	Bl-Root
PAN	*buáq	betel nut	28. BETEL	Bl-CH,Hm,ZED
PAN	*buáq	fruit	4. FLORA	Ts,Bl-CH,ZED
PAN	*bubu	grandparent [vocative]	20. KIN	Bl-SOC
PMP	*bú+bu	bamboo basket fish trap	3.2 FISH	Dp,Bl-CH,ZED
PPH	*bubún	water well	1.5 GEOG	Z=
PMP	*bubúŋ	ridge of roof, ridgepole/beam	12.2 BLDG	Dp,Bl-CH,ZED
PHF	*buCá	blind	25.1 SICK	Dp,Noth,Da,Z=
PHF	*buCu	blister; callus; corn	25.1 SICK	Bl-AE4
PMP	*budaq	foam, bubbles [dsj: *bujaq]	1.2 NATR	Bl-AE4
PHN	*budu[h]	pickle (in brine)	9.3 FOOD	Bl-PAA,Noth,Z=
PHF	*buHut	squirrel, rodent sp.	6.1 FAUNA	Ts
PAN	*bujáq	foam, bubbles [cf: *puCaq]	1.1 NATR	Dp,Bl-PA1,Ts
PPH	*búji?	roe	3.4 FISH	Z=,Ch
PMP	*buk	decay, crumble; powder	1.3 NATR	Z=,Bl-Root
PHN	*buk+buk	weevil	10.3 INSECT	Dp,Dy,Bl-PA1

PHN?	*bu(ŋ)kél	lump, bump	25.3 SICK	Bl-AE1,Z=
PHN	*buken/-	omen dove [dbl: *-muken]	7.2 BIRD	Bl-AE3
PAN	*bukij	hill, mound	1.1 NATR	Dp,Z=,Bl-PA1,Hm
PHF	*bu(ŋ)kul	hump, hunchback	25.1 SICK	Dp,DyTs
PMP	*bulan	albino [dbl: *bulay; cf: 'moon']	29. COLOUR	Bl-AE4
PAN	*búlaN	moon	1.1 NATR	Dp,Dy,Ts
PHN	*buláŋ	wrap-on cockspur for cockfight	27. COCK,CULT	Bl-PA2,ZED
PMP	*buláR	cataract of the eye	25.2 SICK	Bl-CH,ZED
PMP	*bulati	worm = earthworm	6.2 FAUNA	Bl-AE4
PHF	*bulaw-an	gold (-coloured)	18. METAL	Bl-CH,DyTs
PHF?	*buLay	snake	6.1 FAUNA,REPT	DyHM,Ts
PMP	*bulay	albino [dbl: *bulan]	29. COLOUR	Bl-AE4#103n
PHN	*buléR	cataract	25.2 SICK	Ch,Bl-CH
PMP	*buliq	conch shell, triton [cf: *tam-buRiq]	3.2 SEA	Bl-Hm,AE1
PHN	*búliR	bunch, cluster (of fruit)	4.3 FLORA,MEAS	Dp,Noth,Z=
PMP	*bu+lit	putty, caulking substance	2.2 BOAT	Bl-CH,AE2,ZED
PMP	*bulú	wash up (hands)	24. GROOM	Dp,Bl-PA1
PMP	*bulud	mountain	1.3 NATR	Bl-AE4
PHN	*bulúŋ	leaf	4.3 FLORA	Dp,Z=
PSP	*bulúŋ	medicine	25.3 SICK	Z=
PHF	*búluq	bamboo, *Bambusa* sp.	4.1 FLORA	Dp,HK,Bl-Hm,Ts
PMP	*bun	heap up, cover with earth	5.2 FARM	Bl-Root
PHN	*bun+bun	heap, pile	5.3 FARM	Dp,Bl-NS,Z=
PMP	*bunduk	mountain peak, elevated ground	1.3 NATR	Bl-AE3,Hm
PMP	*bu?ni	ringworm, herpes	25.2 SICK	Dp,Bl-CH,ZED
PAN	*bunúq	kill, stab, butcher	9. FOOD,HUNT	Dp,Dy,ZED
PHN	*bunuR	fish sp.	3.3. FISH	Bl-AE3
PMP	*bunút	coconut husk	5.2 FARM	Bl-AE4,Hm
PAN	*buNi /-	hide	26. WAR	Dp,Noth,Z=
PMP	*buŋa	coral sp.	3.2 SEA,FISH	Bl-Hm
PMP	*búŋah	bud, flower; fruit; [SPh] betel-nut	4.2 FLORA	Dp,Bl-PA1,ZED
PHN	*buŋ+buŋ	hollow bamboo tube	5.3 FARM,TOOL	Dp,Noth,ZED
PMP	*buŋ+kut	bent with age	25.1 SICK	Bl-AE4
PNP	*buŋlun	rainbow	1.5 NATR	Z=
PMP	*buqáya	crocodile [Bl-: non-marine]	3.2 REPT,SEA	Dp,HK,Dy,Bl-Hm
PMP	*burak	white	29. COLOUR	Bl-PAA,PA1
PHN	*buriŋ	charcoal	9.1 PROD,FIRE	Z=,Dp
PHN	*buriŋ	striped (animal) [cf: charcoal]	29. COLOUR	Bl-AE3
PMP	*buR	strew, sow, scatter (seed)	5.2 FARM	Bl-Root,Z=
PMP	*búRaw	pursue, chase, run after	26. WAR	Dp,Dy,Noth,Z=
PHN	*buR+buR	porridge, rice gruel	9.3 FOOD	Ch,Bl-NS,Z=
PMP	*buRiq	wash	24. GROOM	Bl-AE3
PAN	*buRúk	rotten	9. FOOD,FLAV	Dp,Noth,Bl-VRR
PMP	*busuk	rotten	9. FOOD,FLAV	Dp,Bl-VRR
PHN	*busuŋ	swollen belly – respect taboo	22. RITE,SICK	Bl-Tab
PAN	*búsuR	bow	8. HUNT,WAR	Bl-CH,Dy,Ts
PHF	*busuR	enemy [cf: 'bow']	26. WAR	Bl-AE3
PHF	*buSuk / ma-	drunk	28. GROG	Dp,Bl-CH,ZED
PMP?	*bu(R)+taq	mud, fertile soil	5.2 FARM	Z=,Bl-AE4
PHN	*bŭtá?	mud	5.3 FARM	Z=
PMP	*but+but	pluck, pull out; extract	9.2 COOK	Dp,Bl-PA1,Noth
PHN	*butíti	fish: pufferfish	3.3. FISH	Bl-AE4,Z=
PMP	*butun	tree sp., *Barringtonia* spp.	4.2 FLORA	ZED,Bl-Hm,Dy
PHN	*bú+tuq	penis	27. SEX	Dp,Z=
PHN?	*búyu?	betel pepper/leaf	28. BETEL	ZED
PPH	*búyug /-	bumblebee	11. BEE	Z=

PNP	*buyúk	rotten	9. FOOD,FLAV	Z=
PHN	*buyuŋ /-	bumblebee	11. BEE	Bl-AE3
PHN	*cak	mud(dy)	5.3 FARM	Bl-Root
PHN	*cal+cal	hammer	18. METAL	Dp
PHN	*cek	blind	25.3 SICK	Bl-Root
PHN	*cěray	part, separate, divide	20.3 KIN,SOC	Bl-AE3
PHN	*ciŋ+cin	ring	18. METAL	ZED
PAN	*Cáu	person, human being	21. SOC	Dp,Ts
PAN	*Cákaw	steal	21. CULT	Dp,Z=
PAN	*CalíS	rope, cord; string	2. + 13. BOAT	Bl-CH,Dy,Ts
PAN	*Cálun	undeveloped/fallow land, field	5. FARM	Bl-CH,ZED
PAN	*CaNém	plant [v]	5. FARM	Ts,Bl-CH,ZED
PAN	*CaNém	bury	23. DEATH	Ts,Bl-CH,ZED
PAN	*CapaH	smoke fish, jerk meat; jerky	9. FOOD	Ts,Bl-CH,ZED
PAN	*Capel	patch	15. SEW	Bl-AE3
PHF	*CaSáw	out in the open; midst of	1.2 GEOG,LOC	Bl-AE4,Z=
PHF	*CaSíq	sew	15. SEW	Dp,Dy,Ts,ZED
PAN	*Cěnék	thorn; pierce	4. FLORA	Bl-AE3
PAN	*Ce+sek	pierce (a soft surface), stab	8. HUNT	Bl-AE4
PAN	*Cik	mottled, spotted	29. COLOUR	Bl-Root
PAN	*Ciqaw	fish: goatfish	3. FISH	Ts,Bl-AE1,Hm,Z=
PAN?	*Cú(m)buq	grow [vintr]; plant sprout [n]	5. FARM	Ts,Bl-AE3,ZED
PAN	*Cuma	body/clothes louse	10. INSECT	Dp,Ts
PAN	*CuNuH	roast in/over fire, broil	9. FOOD	Dp,Ts
PAN	*CuSuR	thread a needle	15. SEW	Ts
PAN	*d_2a(ŋ)+d_2aŋ	heat s.t., warm oneself by fire	9. FOOD,CULT	Dp,Dy,Ts
PMP	*dad$_2$aŋ	shine brightly	1.3 NATR	Dp,Bl-PA1,Dy
PHN	*$d_2$ad$_2$áRa[h	maiden, young girl	27. SEX	Dp,Dy
PMP	*$d_2$áhun	leaf	4.2 FLORA	Dp,Dy
PAN	*dajam/ma-	tame, accustomed to	6. FAUNA,FARM	Bl-AE3
PHF	*dak+dák	hammer; hit (with implement)	12.1 BLDG,PROD	Dp,Da
PMP	*$d_2$akép	embrace, hold	27. SEX	Dp,Dy,Bl-PA1
PSF	*$d_4$akeS	camphor laurel	4.4. FLORA,SICK	Ts,Bl-Hm
PMP	*da(ŋ)+ket	stick, adhere to	12. BLDG,PROD	Bl-AE3
PAN?	*dakíH	dirty; body dirt, dandruff	24. GROOM	Dp,Ts,Z=
PMP	*da+kit	join along the length; raft	2.2 BOAT,BLDG	Bl-AE3
PHN	*dalig	root = buttress root [dsj: *dalij]	4.2 FLORA	Bl-AE3,AE4
PMP	*dalij	root = buttress root [dbl: *dalig]	4.2 FLORA	Bl-AE4
PMP	*dalikán	trivet, three stone fireplace	9.2 FOOD,COOK	Ch,Bl-AE3
PSP	*daliR	buttress root [cf: *dalig, *dalij]	4.2 FLORA	Ch,Z=
PMP	*da+lit	glue, paste, plaster, caulk	12.2 BLDG,PROD	Bl-AE3
PPH	*dăluyun	tidal wave	1.5 NATR	Z=
PSF	*damai	viand, food besides main starch	9.4 FOOD	Ts
PAN	*damaR	torch, light; resin	8. HUNT	Dy,Ts,Z=
PAN	*dánaw	lake, pond	1.1 NATR	Dp,Ts,Bl-Hm
PAN	*d_2a+Núm	water – potable/drinking/fresh	1.1 NATR	Dp,Ts,ZED
PHN	*daŋanan	hilt, handle of a knife or sword	26. WAR	Bl-AE4
PMP	*daŋ+k[ae]q	branch	4.2 FLORA	Bl-AE3
PHF?	*daŋuy	swim [dbl: *laŋuy, *naŋuy]	2.1 BOAT,MOVE	Bl-AE4
PMP	*$d_2$ap+$d_2$ap	tree, *Erythrina indica* [dbl: *DeDap]	4.2 FLORA	Dp,Bl-PA1,Hm
PMP	*$d_2$apúR	hearth, stove	12.2 BLDG,COOK	Dp,Bl-CH,Dy
PMP	*daqan	branch	4.2 FLORA	Dp,Dy
PPH	*daqtaR	floor	12.3 BLDG	Z=
PAN	*daqu	tree, *Dracontomelum edule*	4. FLORA	Bl-AE3,Hm
PMP	*dáRat	littoral sea; surface of sea/land	1.3 GEOG	Bl-Hm
PAN	*daRéq	clay, potting soil	17. POT	Ts,Bl-AE1,Z=

PMP	*daʀi	fish, *Scomberoides* sp.	3.2 FISH	Bl-AE4
PHF	*daʀiŋ	groan, moan	25.1 SICK	Ts,Bl-AE4
PMP	*d$_2$a+taR	plain, level ground	1.3 GEOG	Dp,Dy,Z=
PMP	*dátu?	chief, clan leader or priest	20.1 KIN,SOC	Z=,Bl-CH,SOC
CMP	*dawa	child-in-law (DH), nephew (ZS)	20.2 KIN	Bl-SOC
PAN	*daya	towards the interior [cf: *laHud]	1.1 NATR,LOC	Ts,Bl-Hm
PHN?	*dáya[?]	trick, cheat	19.3 BART	Dp,Dy,Z=
PMP	*debu	dust	1.3 NATR	Bl-VRR,Root
PMP?	*d$_2$e+d$_2$ap	tree, *Erythrina indica*	4.2 FLORA	Bl-Hm
PMP	*d$_2$e+d$_2$em	dark	29. COLOUR	Dp,Dy,Da
PPH	*dejes	windy [cf: PMP *deRes]	1.5 NATR	Z=
PAN?	*dĕ+kéC	sticky substance, adhesive	12. BLDG,PROD	Ts,Bl-Root
PHF	*de+kiŋ	bark (of a deer)	6.1 FAUNA	Bl-AE3,Hm
PAN	*d$_2$ĕlés	bowstring	8. HUNT,WAR	Ts,Bl-AE1
PAN	*d$_2$em	dark; overcast	29. COLOUR	Bl-Root
PAN	*d$_2$em+d$_2$ém	dark(ness)	29. COLOUR	Ts
PMP	*d$_2$ĕpáh	fathom [measure of depth]	2.2 BOAT,MEAS	Bl-Hm,ZED
PHN	*dɛpuŋ	snake – venomous	6.3 FAUNA,REPT	Bl-AE4
PHN	*dĕ+Ráŋ	red; dry	29. COLOUR	Bl-AE2
PMP	*dĕRes	swift flowing [cf: PPH *dejes]	1.3 NATR	Bl-AE1,Z=
PMP	*dɛRuŋ	tree, *Trema orientalis*	4.2 FLORA	Bl-AE4
PMP	*diŋ+diŋ / ma-	cold (of weather)	1.3 NATR	Dp,Bl-PAA
PHN	*d$_2$iŋ+d$_2$iŋ	wall, screen	12.3 BLDG	Dp,Noth,Bl-PA2
PPH?	*dɪRu?	bathe	24. GROOM	Z=
PHN	*dɪRus	bathe	24. GROOM	Dp,Noth,Dy,Z=
PMP	*ditaq	tree, *Alstonia scholaris*	4.2 FLORA	Bl-AE4
PAN	*di+teq	sticky substance, adhesive	12. BLDG,PROD	Bl-AE4
PMP	*du+du	thunder	1.3 NATR	Bl-AE3
PPH	*dúdun	locust	10.4 INSECT	Ch,Z=
PHN	*d$_2$úlaŋ	wooden tray, table	12.3 BLDG,PROD	Dp,Bl-PAA,Noth
PPH	*dúlut	give; serve (food)	21. CULT,BART	Z=
PAN?	*dɪma	another of a different kind	19. BART	Ts,Z=
PAN?	*dɪma	companion, mate	21. CULT	Ts,Z=
PMP	*d$_2$uŋ+d$_2$uŋ	sheltered (as from wind or rain)	2.2 BOAT	Bl-AE3
PHN	*duŋun	tree, *Heritiera litteralis*	4.3 FLORA	Bl-Hm
PHN	*duR+duR	thunder	1.4 NATR	Bl-AE3
PAN	*dúRiH	thorn	4. FLORA	Dp,Dy,Z=
PAN	*d$_3$uSá	two	19. NUM	Dp,Dy,Ts
PMP	*dúyan	hammock	12.2 BLDG,PROD	Dp,Z=
PMP	*d$_2$uyuŋ	dugong, seacow	3.2 SEA	Bl-H,Dp
PMP	*e+kep	brood, sit on eggs	7.2 BIRD	Bl-AE4
PSP	*e+máw	deaf, dumb, mute	25.3 SICK	Z=
PHN	*e+mís	sweet	9.3 FLAV	Bl-AE2
PAN	*?ɜném	six	19. NUM	Dp,Ts
PMP	*eŋer	growl, snarl	6.2 FAUNA	Bl-AE4
PMP	*e(m)pu	ancestor [reference; cf: *apu]	20.1 KIN	Z=,Bl-Voc,SOC
PHN	*e(m)pú?	ancestor, grandparent [address]	20.3 KIN	Z=,Bl-Voc
PHN	*eRiq	sword grass, *Imperata cylindrica*	4.3 FLORA	Bl-AE3
PAN	*?e+sá	one	19. NUM	Dp,Ts,ZED
PSP	*e+séR	man, male	27. SEX	Z=
PHN	*e+súŋ	mortar	5.3 FARM,RICE	Bl-AE1
PSP	*e+táw	person	21. SOC	Z=
PHF	*gɜa+Cél	itch	25.1 SICK	Dp,Da
PHN?	*gɜádiŋ	ivory	19.3 BART	Dp
PHN	*gɜaDuŋ	tuber, *Dioscorea* spp. [cf: 'green']	4.3 FLORA	Bl-AE4
PHN	*gɜak+gak	crow	7.2 BIRD	Dp,Z=

PHN	*gama?	catch fish/shrimp with the hands	3.3. FISH	Bl-AE3
PHN	*gamat	plant used for dyestuff	4.3 FLORA	Bl-AE3
PMP	*gap+gap	stammer, stutter	25.2 SICK	Bl-AE4
PHN	*ga+téq	coconut cream/milk [cf: *getaq]	5.2 COCO,FOOD	Bl-AE4
PPH	*ga?ud	oar	2.4 BOAT	Z=
PMP	*gaway	octopus tentacles / arms	3.2 FISHBODY	Bl-Hm
PHN	*gelaŋ	worm – intestinal	25.3 SICK	Bl-AE4
PHF?	*geláŋ	bracelet	16. CLOTH	Dp,DyTs
PMP	*ge+lap	lightning that strikes s.t.	1.3 NATR	Bl-AE4
PMP	*gemi	pilotfish, *Remora* [dsj: *kemi]	3.2 FISH	Bl-Hm,AE4
PHN	*geraq	misfortune, catastrophe	22. RITE,CULT	Bl-AE4
PMP	*gĕrét	cut, slice	9.2 FOOD	Bl-AE1,Z=
PHN	*getáq	coconut cream / milk	5.2 COCO,FOOD	Z=,Bl-AE4#201n
PMP	*gidik	tickle [dbl: *gitik, *kitik]	27. PLAY	Bl-AE3
PMP	*gíliŋ	grind, mill	5.2 FARM,TOOL	Dp,Bl-PA1,Noth
PHN	*giliŋ-án	millstone	5.3 FARM,TOOL	ZED
PHN	*gir+gir	shiver, tremble [dsj: *gigil]	25. SICK	Bl-AE4
PMP	*giri	tickle [dbl: *kidi]	27. PLAY	Bl-AE3
PMP	*gitik	tickle [dbl: *gidik, *kitik]	27. PLAY	Bl-AE3
PPH	*gubat	woods, forest	1.5 GEOG	Z=
PHF	*guC+guC	pull out, pluck; weed	5.1 FARM,MOVE	Bl-AE4
PMP	*gu(n)+d$_2$em	overcast, darkened	1.3 NATR	Bl-AE4
PPH	*hábas	growth in mouth of animal	25.4 SICK	Z=,Bl-Tir
PHN	*hábel	weave	14. WEAV	Bl-AE2,ZED
PHN	*ha(m)bél	woven material	14. WEAV	Bl-AE2,ZED
PHN	*ha(m)+beŋ	block, obstruct	5.3 FARM,MOVE	Bl-AE3
PPH	*há+buŋ	shelter, shed, hut	12.4 BLDG	Z=
PPH?	*ha(m)-bur?aw	molave tree, *Vitex parviflora*	4.4. FLORA	Z=
PMP	*ha(m)+buR	spread wide; sprinkle	5.2 FARM	Dp,Bl-PA1
PNP?	*hadaŋ	gills [cf: PMP *hásaŋ]	3.2 FISHBODY	Z=
PWI	*hádi?	king(dom)	20.3 KIN,SOC	Dp,Dy,Z=
PMP	*ha-d$_2$íRi	housepost, pillar; pile; beam	12.2 BLDG	Dp,Bl-PA1,CH
PHN	*halás	woods, forest	1.4 GEOG	Dp,Z=
PPH	*ha?+muR	dew	1.5 NATR	Z=
PPH	*hánap	seek, look for	8.4 HUNT	Z=
PHN	*ha?nay	set up warp on a loom; entwine	14. WEAV	Dp,Noth,Z=
PMP	*háŋin	wind, air	1.3 NATR	Dp,Dy,Noth,ZED
PMP	*ha-pějes	spicy hot; pain(ful)	9.2 FLAV,SICK	Dp,Noth,Z=
PMP	*hápin	mat, cover(ing)	13. BRAID	Bl-AE1,Z=
PPH	*haqlu	pestle	5.3 RICE	Z=
PMP?	*haRedán	notched log ladder, staircase	12.2 BLDG	Dp,Bl-CH
PMP	*hásaŋ	gills	3.2 FISHBODY	Dp,Da,Dy,Z=
PAN	*Hásaq	whet, sharpen; whetstone	12. BLDG,TOOL	Bl-CH,Z=
PHN	*ha+sék	dibble, sow (rice seedlings)	5.3 FARM,RICE	Bl-PA3,Z=
PAN	*Hataq/ma-	raw, unripe [dsj: *qa(n)taq]	9. COOK	Dp,Ts,Da,Z=
PPH	*há?un	take from the fire	9.4 COOK,FOOD	Z=
PPH?	*háyup	animal	6.4 FAUNA	Z=
PHF	*Hemáy	rice (generic) [dbl: *Sumay]	5.1 FARM,RICE	HK,Dy-HM
PSP	*heyáq/ma-	ashamed, lose face [cf: PAN *Siaq]	21. CULT	Bl-AE1,Z=
PHF	*Hiáp	count	19.1 NUM,BART	Bl-PAA,Z=
PPH	*hi(N)-kutu	delouse	24. GROOM	Z=
PPH	*hílut	rub, massage	25.1 SICK	Z=
PHN	*hí+paR	sister-in-law	20.3 KIN	Dp,Dy,Z=
PAN	*Hípes	cockroach	10. INSECT	Dp,Z=
PPH	*hi+pun	shrimp	3.4 SEA	Z=
PMP?	*huaR	vine, *Flagellaria indica*	4.2 FLORA	Bl-Hm,AE3

PAN?	*Hules	upper garment [dsj: *qules 'blanket']	14. + 16. WEAV	Ts,Z=
PHN	*humbak	swell, waves	1.4 NATR	Dp,Dy,Z=
PHN	*huzam	borrow [dbl: *Se(n)zam]	19.1 BART	Bl-AE3
PMP	*i+but	pull out, uproot [dbl: *a(m)+but]	5.2 FARM,MOVE	Bl-AE4
PHN	*íkej	cough	25.3 SICK	Ch,Z=
PMP	*ilap	apparition, glimpse of s.t.	22. RITE	Bl-AE4
PHF	*ilem/ma-	green	29. COLOUR	Bl-VRR
PHF	*ileŋ	turn, veer to the side	2.1 BOAT	Bl-AE2,VRR
PHN	*ílu	orphan	20.3 KIN	Bl-PAA,Z=
PAN	*ína	mother (M/MZ) [reference]	20. KIN	Dp,Bl-Voc,SOC
PHN	*iná?	mother [address]	20.3 KIN	Bl-Voc,Z=
PHN	*ináH	mother [address]	20.3 KIN	Ts,Z=
PHN	*ináŋ	mother [address]	20.3 KIN	Bl-Voc,Z=
PMP	*náy	mother [address]	20. KIN	Bl-Voc,Z=
PMP	*inúm	drink	9.2 FOOD	Dp
PMP	*iRaq/ma-	red	29. COLOUR	Dp
PHF	*iRík	thresh; [NPh] unhusked rice	5.1 RICE	Ts,Dy-HM
PPH	*íRit	nits, louse eggs	10.4 INSECT	Z=
PAN	*i+sá	one	19. NUM	Dp,Da,ZED
PPH	*i-sedá?	fish; food eaten with the staple	3. FISH,FOOD	ZED
PPH	*ísip	count; think; consider	19.4 BART	Z=
PPH	*itu?	dog; puppy	6.4 FAUNA	Z=
PAN	*kaan	eat	9. FOOD	Da,Z=
PHN	*kábiR	annex, subject; draw towards self	26. WAR	Bl-AE4,Z=
PMP	*kabu	kapok tree, *Ceiba pentandra*	4.2 FLORA	Bl-AE3,Hm
PMP	*kabut	fog	1.3 NATR	Dp,Bl-VRR
PAN	*ká?en	eat	9. FOOD	Dy,Ts,Z=
PHN	*kahiR	scratch up the ground (chicken)	7.3 BIRD,MOVE	Bl-AE4,Z=
PAN	*kaka	sibling – older	20. KIN	Dp,Bl-Voc,SOC
PHN	*kalamata	plaitwork	13. BRAID	Bl-AE3
PMP?	*kálaŋ	wedge	12.2 BLDG,TOOL	Dy,ZED
PHN	*kalapini	swallow	7.3 BIRD	Bl-AE3
PHN	*kalásag	shield – rectangular [cf: *tamiŋ]	26. WAR	Bl-AE2
PPH	*kălásan	forest	1.5 GEOG	Z=
PHN	*kalasaR	floor beam	12.3 BLDG	Bl-AE4
PMP?	*kalati	worm = earthworm	6.2 FAUNA	Bl-VRR
PAN	*kalaw	hornbill	7. BIRD	Ch,Bl-AE1,Hm
PHF	*kaLiC	animal hide	16. CLOTH	DyTs
PAN	*kálih	dig (out); canal, ditch	5. FARM	Dy,Bl-AE4,Ts
PMP	*kamáliR	bachelor's quarters; shed	12.2 BLDG	Bl-Hs
PHF	*kamaya	plant, *Diospyros discolor*	4.1 FLORA	Bl-AE4
PHN	*kambiŋ	goat	6.3 FAUNA	Z=
PMP	*kam+buR	sprinkle, scatter (seed)	5.2 FARM	Bl-AE4
PHN	*kamdiŋ	goat	6.3 FAUNA	Z=
PAN	*kamí	we [exclusive; cf: *kitá]	21. CULT,PRO	Dp,Bl-1977
PMP?	*kamuniŋ	tree, *Murraya paniculata*	4.2 FLORA	Bl-AE1,Hm
PMP?	*kanaŋa	tree, *Cananga odorata*	4.2 FLORA	Bl-AE2,Hm
PMP	*kanarum	tree sp.	4.2 FLORA	Bl-AE3
PMP	*kanawa	tree, *Cordia* spp.	4.2 FLORA	Bl-AE2,Hm
PHN	*kandiŋ	goat	6.3 FAUNA	Z=
CMP	*kandoRa	cuscus	6.4 FAUNA	Bl-LVWL,Hm
PMP	*kantuŋ	pouch, pocket, bag	16. CLOTH	Dy,ZED
PHN	*ka-nu?us	squid, cuttlefish [cf: PMP *nu?us]	3.2 SEA	Bl-AE3
PAN	*kaNasay	fish: adult mullet	3. FISH	Bl-AE1,Hm
TAM	ˣkăpál	ship	2.4 BOAT	Wolff
IND	ˣkapas	cotton [< PKT kappasa]	14. WEAV	Dp,Gon

PHN?	*kápes	cotton	14. WEAV	Ch
IND	ˣkapuk	cotton [widespread loan]	14. WEAV	Z=
PMP	*kaput	tie, clasp together	12.2 BLDG	Bl-AE3
PHN	*karat	rust	18. METAL	Bl-CH
PHF	*kar+kar	dig in the earth	5.1 FARM	Bl-AE4
PHF	*ka+rut	scrape, rasp	12. BLDG	Bl-AE4
PMP	*kaRakap	crab – rock / mangrove	3.2 SEA	Bl-AE4
PHF	*kaRaŋ	crab – swamp / land	3.1 SEA	Z=,Bl-AE4,Hm
PAN	*kaRát	bite	9. FOOD,MOVE	Dp,Ts,Z=
PAN	*káRaw	mite; scratch (an itch)	10. INSECT	Ts,Bl-VRR
PMP	*ka+Rud	scrape, grate, rasp	12. BLDG	Bl-AE3
PMP	*kaRuki	crab – sand	3.2 SEA	Bl-Hm
PMP	*kasambiʔ	tree, *Schleichera trijuga*	4.2 FLORA	Bl-AE4
PMP	*kásaw	rafter	12.2 BLDG	Bl-CH,Dy,ZED
PSP	*kasíli	eel [cf: PHN *kasuli]	3.3 SEA,REPT	Z=
PHN	*kasuli	eel – freshwater	3.3 SEA,REPT	Bl-AE4
PAN	*káSiw	tree, wood	4. FLORA,PROD	Dp,Dy,Ts,ZED
PHN	*katambak	fish sp.	3.3. FISH	Bl-AE1,AE3
PPH	*katél	itch(y)	25.1 SICK	Z=
PMP?	*kátiR	outrigger	2.2 BOAT	Dp,Dy,ZED
PAN	*kat+kat	bite [cf: *kaRát]	9. FOOD,MOVE	Bl-VRR,Z=
PHN	*kăwáʔ	spider	10.3 INSECT	Bl-AE2,Z=
PHN	*kawad	wire	18. METAL	Dp,Z=
PHN?	*kăwaliʔ	frypan, cooking pot	9.3 COOK	Dy,Wol
CHN	ˣkáwaq	cauldron [< Mandarin kuo]	9.3 COOK	Dp,ZED,Wol
PHF	*kawáyan	bamboo – spiny, *Bambusa spinosa*	4.1 FLORA,BLDG	ZED,Bl-AE1,Hm
PHF	*káwiL	hang(ing) caught	8.1 HUNT	DyTs
PAN?	*kawíL	fish hook	3. FISH,TOOL	Bl-CH,Ts,ZED
PHN	*kaʔ+wit	hook (household)	12.3 BLDG,TOOL	Dp,ZED
PSP	*kayab	blanket	14. WEAV	Z=
PHN	*kayaw	go head-hunting	26. WAR	Dp,Bl-CH,Z=
PAN	*káyuH	tree, wood, stick	12. BLDG	Dp,Z=
PWI	*kazaŋ	loosely woven (mat)	13. BRAID	Dp
PMP	*kebur	fish drive; churn water	3.2 FISH	Bl-CH,ZED
PAN	*keC	adhesive, sticky substance	12. BLDG,PROD	Bl-Root
PHN	*kedút	pinch	27. PLAY,CULT	Ch,Z=
PMP	*kek+kek	cackle (of fowl)	7.2 BIRD	Bl-AE4
PMP	*ke+las	peel, skin off, lay bare	9.2 COOK	Bl-AE3
PMP	*keleŋ	cut into pieces	9.2 COOK	Bl-AE4
PMP	*kemi	pilotfish, *Remora* [dsj: *gemi]	3.2 FISH	Bl-Hm
PMP	*kenas	preserved meat or fish	9.2 FOOD	Bl-AE3
PHN?	*kenduŋ	tree sp.	4.3 FLORA	Bl-AE3
PHF	*kěNáʔ	hit the mark, strike	8.3 HUNT,WAR	Dp,Ts,Z=
PMP	*ke+ñej	dive, plunge; drown	2.2 BOAT	Bl-AE4
PMP	*keŋ	cramp(s), stiffening of limbs	25.2 SICK	Bl-Root
PHN	*kepuŋ	surround, besiege [dbl: *kepuq]	26. WAR	Bl-AE4
PHN	*kepuq	surround, besiege [dbl: *kepuŋ]	26. WAR	Bl-AE4
PMP?	*keraq	scream of a monkey [*akerahaq]	6.2 FAUNA	Bl-AE4#14,Hm
PHF	*keriq	scream of monkeys, chattering	6.1 FAUNA	Bl-AE3,Hm
PSP	*keRán	scab	25.3 SICK	Z=
PHN	*keRáŋ	scab	25.3 SICK	Bl-AE3,Z=
CMP	*keRaŋ	turtle: hawksbill	3.4 SEA	Bl-Hm
PHF	*keR+keR	shake, tremble	25. SICK	Bl-AE4
PMP	*keRteŋ	fish: grouper	3.2 FISH	Bl-Hm
PMP?	*keteb	bite	9. FOOD,MOVE	Bl-VRR
PMP?	*ketep	bite	9. FOOD,MOVE	Bl-VRR

PMP	*ket+ket	bite, nibble	9. FOOD,MOVE	Bl-PA3,Z=
PMP	*kiči	tickle [dbl: *gidik, *giri]	27. PLAY	Bl-AE3
PHN	*kilála	know (person), recognise	20.3 KIN	Dp,Z=
PHF	*kilát	lightning	1.2 NATR	Z=,Bl-VRR
PMP	*kima	clam – giant	3.2 SEA	ZED,Dy,Bl-Hm
PHN?	*kináŋ	rock crystal	19.3 BART,NATR	Bl-PAA
PMP	*kit	join along the length	12.2 BLDG	Bl-Root
PAN	*kitá	we [inclusive; cf: *kamí]	21. CULT,PRO	Dp,Bl-1977a
PHN	*ki-tey	suspension bridge	12.3 BLDG	Bl-AE4
PMP	*kitik	tickle [dbl: *gidik, *gitik]	27. PLAY	Bl-AE3
PMP?	*kit+kit	bite, nibble, chew	9. FOOD,MOVE	Bl-VRR,Z=
PMP	*kuak	crow; bird with a deep cry	7.2 BIRD	Bl-AE1
PAN	*kuan	hamlet; kin-based residential unit	12. BLDG,SOC	Bl-AE4
PHN	*kubít	touch lightly	19.3 BART,CULT	Bl-PA3
PHF	*kuCem	dark(ened)	29. COLOUR	Z=,<Bl-AE4#302
PAN	*kúCuH	head louse	10. INSECT	Dp,HK,Noth,Ts
PMP	*kúd$_2$en	cooking pot; water jar	9.2 + 17. POT	Bl-CH,Dy,ZED
PAN?	*kud$_3$+kud$_3$	grate, rasp, scrape	12. BLDG	Z=
PMP	*ku+d$_2$ug	thunder	1.3 NATR	Dp,Bl-VRR
PMP	*kukun	tree, *Schoutenia ovata*	4.2 FLORA	Bl-AE3,AE4
PHN	*kulad	scar [dbl: *ulat]	25.2 SICK	Bl-AE3
PHN	*kulambar	fish sp.	3.3. FISH	Bl-AE3
PMP	*kulu	tree, *Artocarpus* sp. [dbl: *kuluR]	4.2 FLORA	Bl-AE4
PHN	*kulub	bamboo gutter or ridge pole cover	12.3 BLDG	Bl-CH,AE2
PMP	*kuluR	breadfruit, *Artocarpus elastica*	4.2 FLORA,FOOD	Bl-CH,Hm,ZED
PMP	*kumbal	dry sago branches	5.2 FARM,FLORA	Bl-Hm,AE3
PPH	*kúmut	blanket	14. WEAV	Z=
PMP?	*kunij / ma-	yellow	29. COLOUR	Dp
PMP?	*kúnij	turmeric, *Curcuma zeodoaria*	5.2 FARM,FLORA	Dp,Ch,Bl-Hm
PMP	*kur	word used to call chickens, etc.	7.2 BIRD,FOWL	Bl-AE3
PHN?	*kúraŋ	lacking, insufficient, not enough	19.3 NUM	Dp,Noth
PHF	*kurap	scaly skin disease	25.1 SICK	Bl-CH,Ts,ZED
PMP	*kurapu	fish: perch	3.2 FISH	Bl-Hm
PHN	*kurisiŋ	cracked, peeling (of skin)	25.3 SICK	Bl-AE3
PMP	*kuRíta	octopus	3.2 SEA	Dp,HK,Dy,Bl-Hm
PPH	*kúRun	cogon grass, *Imperata cylindrica*	4.4. FLORA	Z=
PMP?	*kusik	scream of monkey	6.2 FAUNA	Bl-Hm
PHN	*kutíŋ	cat	6.3 FAUNA	Bl-PAA,Z=
PHN	*kut+kut	bite, nibble, chew	9. FOOD,MOVE	Bl-VRR,Z=
PPH	*kuyapés	boil, sore, tropical ulcer	25.4 SICK	Z=
PAN	*labaw	rat	6. FAUNA,PEST	HK,Ts
PHN	*lábay	yarn; skein	14. WEAV	Z=,Dp,Noth
PHN	*labuR	mix foods together	9.3 FOOD,MOVE	Bl-AE4
PMP	*la(ŋ)ga?	heat food up	9.2 FOOD,MOVE	Bl-AE4
SKT	ˣlagadi?	saw	12.3 TOOL	Gon
PAN	*laHúd	towards the sea [cf: *daya]	1.1 NATR,LOC	Ts,Bl-Hm,ZED
PHN	*lahúk	mix (together)	9.3 FOOD,MOVE	Dp,Z=
PHN?	*lája	weave (mat), braid	13. BRAID	Dp,Z=
PMP	*laji	tree with poison sap, *Antiaris*	4.2 FLORA	Bl-AE3,Hm
PMP	*lajih	fish: dolphinfish	3.2 FISH	Bl-AE3,Hm
PHF	*lakay	husband; old (man)	20. KIN,SEX	Bl-AE3#171n.
PHN	*laki	grandfather; old (of people)	20. KIN,AGE	Bl-Voc,AE3
PMP?	*láki	man, male	27. SEX	Dp,Dy,Noth,Z=
PHN	*láku?	peddle (PHN), sell (NPh)	19.3 BART	Z=,Dp,Wol
PHF	*LáLak	offspring, child	20. KIN	Dy
PHN	*la-láki	man, male	27. SEX	Dp,Z=

PHN	*lalatu	sparks, burning ashes in the wind	9.3 COOK,NATR	Bl-AE3
PHN	*lalatu	ant sp.	10.3 INSECT	Bl-AE3
PMP	*lálej	fly	10.2 INSECT	HK,Dp
PMP?	*laluŋ	cock, rooster	27. COCK,FOWL	Bl-CH,Hm,ZED
PHN	*lambayuŋ	plant sp.	4.3 FLORA	Bl-AE3
PHF?	*Lam+Lam	accustomed, tame	6.1 FAUNA	Ts
PMP	*lamu(t)	seaweed sp., moss	3.2 SEA,FLORA	Bl-Hm
PMP	*lamúk	mosquito	10.2 INSECT	Dp,Bl-VRR,Z=
PHN	*landasan	anvil	18. METAL	Dp,Bl-CH
PHN?	*lan+tay	floor(ing)	12.3 BLDG	ZED
PMP	*láña[h]	vegetable oil	9.2 FOOD,PROD	Ch,Z=,Bl-AE2
PAN	*lá+ŋaw	house fly	10. INSECT	HK,Dp,Ts
PMP	*laŋen	rollers for beaching a canoe	2.2 BOAT	Bl-CH,ZED
PHF	*laŋesej	stench of putrid urine	30. SMEL	Z=,<Bl-AE3
PAN	*laŋit	sky, heaven	1.1 NATR	Dp,Ts
PPH	*laŋka?	jackfruit	4.3 FLORA,FOOD	Z=
PHF	*Laŋ+si?	odour, stench (of fish/blood)	30. SMEL	Z=,Bl-AE4
PHF	*laŋuy	swim [dbl: *daŋuy, *naŋuy]	2.1 BOAT,MOVE	Dp,Ts
PMP	*lap	flash, sparkle	1.3 NATR	Bl-Root
PHN	*laqlu	pestle	5.3 RICE	Z=,Bl-AE1,AE4
PMP	*laquya	ginger [dbl: *laqia, *lu?ya]	5.2 FARM,FOOD	Bl-CH,Hm,Dy,Z
PHF	*laRaŋ	forbid	22. RITE,CULT	Dp,Bl-AE4
PHN	*laRíw	run (away)	26. WAR	Dp,Noth,Z=
PHN	*la+sem	sour	9. FLAV	Bl-AE3
PMP	*lateŋ	nettle, *Laportea* [Dbl: zalateŋ]	4.2 FLORA	Bl-Hm
PHN	*latiq	swampy ground	1.4 NATR	Bl-AE3
PHF	*Lauŋ	shadow; shade(d)	29. COLOUR	DyTs
PHN	*lawah	drop by, pay a visit	20.3 KIN,CULT	Z=,<Bl-AE4
PAN	*láwaq	spider	10. INSECT	HK
PMP	*lawí	tail feather	7.2 BIRD	Bl-VRR,Dp,Ch,Z=
PSP	*lawiR	hut, house	12.4 BLDG	Z=
PMP	*laya	affinal cousin (FZS, ZH)	20.1 KIN	Bl-SOC
PHN	*layaŋ	fly [v]	7.1 BIRD,MOVE	Dp,Z=
PHF	*layap	fly [v]	7.1 BIRD,MOVE	Bl-AE3
PMP	*láyaR	sail	2.2 BOAT	Bl-CH,ZED,Dy
PPH	*lebág	swell(ing) of stomach due to gas	25.4 SICK	Z=
PHN	*le(m)bak	valley	1.4 GEOG	Bl-AE3#182
PHN	*le(m)baq	valley, watercourse between hills	1.4 GEOG	Bl-AE3
PHN	*lěbéŋ	bury	23. DEATH	Dp,Dy,McF,Z=
PHN	*lě(m)béŋ	valley; deep water between hills	1.4 GEOG	Bl-AE4,Z=
PHN	*lebúq	settlement, village area	20.3 KIN,CULT	Bl-PA3
PMP	*le(ŋ)+gur	thunder	1.3 NATR	Bl-AE4
PHF	*Le+kéC	stick, adhere	12. BLDG,PROD	Dp,Bl-Root,Ts
PHF?	*Lek+Lek	tickle	27. PLAY	DyTs
PHN	*le(b)+leb	forfeit	19.3 BART	Bl-AE4
PAN	*lem	dark	29. COLOUR	Bl-Root
PMP	*le+mek	fertile (of soil)	5.2 FARM	Bl-AE1,AE3
PMP	*lemeŋ	wet (of soil)	5.2 FARM	Bl-AE4
PPH	*lěmés	drown	2.4 BOAT	Z=
PHN	*lentiq	thunder storm, lightning bolt	1.4 NATR	Bl-AE2,Z=
PHN?	*lěŋáh	sesame, *Sesamum indicum*	5.3 FARM,FOOD	Dp,Dy
PHN	*lě(m)pád$_2$	fly [v]	7.1 BIRD,MOVE	Bl-PAA,Z=
PAN	*le+paw	village granary, field house, hut	12. BLDG	Bl-Hs
PHN	*lepuq	bone fracture; crooked (of limbs)	25.3 SICK	Bl-AE3
PMP	*le+put	use a blowpipe	26. WAR	Bl-AE1,AE4
PMP	*leséq	nit, louse egg	10. INSECT	Bl-AE3#191

PHN	*le+sít	squeeze/squirt-out	25.2 SICK	Bl-AE1
PHF	*lĕ+suŋ	mortar	5.1 FARM,TOOL	Bl-CH,Ts,ZED
PHN	*lĕ(n)+táw	float	2.3 BOAT	Z=,Bl-AE4
PMP	*liaŋ	cave	1.3 + 23. NATR	Bl-PA2,Dp,Noth
PSP	*libun	woman	27. SEX	Z=
PAN	*Libu[ʔH]	lair, den, nest	6. FAUNA	Dy,Ts
PHN	*li(n)ji	batten of a loom	14. WEAV	Bl-AE3
PSF	*likuLáw	leopard	6.2 FAUNA	Ts,Z=
PMP	*lilin	beeswax	11. BEE	Bl-AE3
PAN	*limá	five	19. NUM	Dp,Ts,ZED
PMP	*limás	bail, canoe water-bailer	2.2 BOAT	Bl-CH,Dy,ZED
PMP	*limaw	*Citrus* fruit	4.2 FLORA,FOOD	Bl-CH,HK,ZED
PMP	*limut	seaweed sp.	3.2 SEA,FLORA	Bl-Hm
PHN	*lind$_2$uŋ	protect(ion)	12.3 BLDG,WAR	Dp,Dy
PHN	*lind$_2$uR	earthquake	1.4 NATR	Dp,Z=
PHN	*lintaq	leech [reduction of: *qalimeCaq]	10.1 INSECT	Dp,Z=
PHF	*linuR	earthquake	1.2 NATR	Z=,Bl-Hm
PMP	*liR	flow [cf: *a+liR, *sa+liR]	1.3 NATR	Bl-Root,Z=
PMP	*lisáq	nit	10. INSECT	Bl-PA1
PAN	*liseSáq	nit, louse egg	10. INSECT	HK,Z=,Ts
PMP	*lit	caulking; glue [cf: *bu+lit]	2.2. BOAT	Bl-Root
PHN	*li(n)+tem	deep black, shiny black	29. COLOUR	Bl-AE3
PAN	*liu-2	turn, veer to the side	2. BOAT	Bl-VRR
PHF	*Luáŋ	carabao, ruminant	6.1 FAUNA,FARM	Bl-LVWL,Da,Z=
PPH	*lúbid	twine	13. BRAID	Z=
PHF	*luCuŋ	monkey sp.	6.1 FAUNA	HK,Bl-LVWL,Hm
PSP	*luhnaw	green	29. COLOUR	Z=,Bl-Tir
PMP	*lújan	load a canoe; cargo	2.2 SEA,MOVE	Bl-AE3,Z=
PHF	*LukaH	wound(ed) [dsj: *Nukaq]	25. SICK,WAR	Dy,Ts
PAN	*lukuC	parasitic plant, *Asplenium nidus*	4. FLORA	Bl-AE1,Hm
PHN	*lumaq	weak, tired; worn-out	25.3 SICK	Bl-AE4
PMP	*lumbar	set free	26. WAR	Bl-AE4
PMP	*lumbu	unidentified plant sp.	4.2 FLORA	Bl-AE4
PMP	*lúmut	seaweed sp., moss	3.2 SEA,FLORA	Bl-Hm
PPH	*lúnud	sink	2.4 BOAT	Z=
PHN	*luŋún	coffin	23. DEATH	Bl-PAA,Ch,Z=
PHF	*lupaS	spit (out)	9.1 FOOD	Bl-AE4
PHN	*luR	flow [cf: *a+luR, *sa+luR]	1.4 NATR	Bl-Root
PPH	*lúsiʔ	penis	27. SEX	Z=
PHF	*lu+súŋ	mortar [dbl: *lĕ+suŋ]	5.1 FARM,TOOL	Ts
PHN	*lú(n)tuq	cook	9.3 FOOD	Dp,Z=
PHF	*luʔum	ripe	4.1 FLORA	Z=,Bl-AE3
PHN	*luyah	weak, wornout	25.3 SICK	Z=,<Bl-AE4
PPH	*ma-	one unit (10, 100, 1000)	19.4 NUM	Z=
WIN?	ˣmadu	honey [cf: Pr.Indo-Europ. *medhu-]	11. BEE	Dp
PMP	*ma-isá	one, only, alone	19.2 NUM	Bl-AE3
PMP	*maka-empu	grandchild	20.1 KIN	Bl-SOC
PHF	*malat	machete, parang, sword	12.1+18. METAL	Bl-CH,ZED
PMP?	*mali	plant, *Leea* spp.	4.2 FLORA	Bl-AE3,Hm
PHN?	*malíʔ	taboo [cf: PHF *paliSi]	22. RITE,CULT	ZED
PHF	*maliqi	pregnant [cf: PHF *paliSi]	27. SEX	Bl-AE4
PAN	*mama	father [children's vocative form]	20. KIN	Dp,Bl-VRR
PMP	*mamáq	chew (but not intend to eat)	28. BETEL	Dp,Bl-PA1,Dy,Z=
PMP	*mamin	fish: wrasse, *Cheilinus* sp.	3.2 FISH	Bl-AE3,Hm
PSP	*mam(a)q-en	areca nut	28. BETEL	Z=
MSP	ˣmanís	peanut	4.4. FLORA,FOOD	Z=

CMP	*mansar	bandicoot, marsupial rat	6.4 FAUNA	Bl-LVWL,Hm
PMP	*manúk	chicken, bird, fowl	7.2 BIRD,FOWL	Dp,ZED
PHN	*maŋali	fish: marine sp.	3.3. FISH	Bl-AE3
PMP	*maŋkuk	cup, bowl	17. POT	ZED,Dy
PMP	*maŋsit	smell – vile	30. SMEL	Bl-AE4
PIN	*medáŋ	tree sp. similar to breadfruit	4.4. FLORA,FOOD	Bl-NS
PMP	*meñak	fat, grease	9.2 FOOD	Dp,Bl-VRR
PMP	*me(n)tik/ha-	ant with venomous bite	10.2 INSECT	Bl-AE3
PHN	*minúm	drink [<*(u)m-inúm]	9.2 FOOD,GROG	Z=
PHN	*miñak	fat, grease, oil	9.2 FOOD	Bl-VRR,Noth
PMP	*misik	sucking noise made to signal s.o.	21.2 CULT	Bl-AE3
PMP?	*muken/-	omen dove [dbl: *-buken]	7.2 BIRD	Bl-AE3,Hm
PMP?	*múla	plant [v]	5.2 FARM	Bl-AE2,Dp,ZED
PMP?	*muntay	*Citrus* spp.	4.2 FLORA,FOOD	Bl-AE1,Hm
PMP	*muR	gargle; rinse the mouth	24. GROOM	Bl-Root,Z=
PMP?	*músaŋ	civetcat	6.2 FAUNA	Bl-Hm
PMP	*mutu	fish: damsel fish	3.2 FISH	Bl-AE4
PMP	*namaw	lagoon, harbour	1.3 GEOG	Bl-AE1,Hm
PMP	*na+na	mother [children's vocative form]	20. KIN	Bl-VRR
PAN	*nánaq	pus	25. SICK	Dp,Dy,Ts,Z=
PMP	*naŋa	estuary, river mouth [dbl: *binaŋa]	1.3 GEOG	Bl-AE1,AE4
PMP?	*naŋa	rattan sp.	4.2 FLORA	Bl-Hm
PHN	*naŋka?	jackfruit, *Artocarpus*	4.3 FLORA,FOOD	Bl-Hm
PHF	*naŋuy	swim [dbl: *daŋuy, *laŋuy]	2.1 BOAT,MOVE	Bl-AE4
PMP	*náRa	tree, *Pterocarpus indica*	4.2 FLORA	Bl-AE1,Hm,Z=
PAN	*na+suk	cook by boiling [dbl: *Nasu]	9. FOOD	Bl-AE1,Z=
PMP	*nek+nek	gnat, sandfly	10.2 INSECT	Bl-AE3
PMP	*nepuq	fish: stonefish	3.2 FISH	Bl-Hm
PMP	*ni+law	bright light	1.3 NATR	Bl-AE3
PMP	*ninih	shake, tremble, rock	1.3 NATR	Bl-AE2
PMP	*niniq	plant for basket, *Donax canniformis*	4.2 FLORA,BRAID	Bl-AE4
PMP	*niŋal/-	echo	1.3 NATR	Bl-AE3
PHN	*nípaq	nipa reed, *Nypa fruticans*	12.3 BLDG,FLORA	Dp,Z=
PMP	*nipay	snake	6.2 FAUNA,REPT	Bl-AE2
PHN	*níRu	winnowing basket	5.3 RICE	Dp,Noth,Z=
PMP	*ní(n)tuq	fern, *Lygodium circinnatum*	4.2 FLORA	Bl-AE3,Hm
PMP	*niúR	coconut	5.2 FARM	HK,Bl-Hm,Dy,Z
PMP	*nu?us	squid, cuttlefish [cf: *kanu?us]	3.2 SEA,FISH	Bl-AE3,Hm
PMP	*nunuk	fig tree, *Ficus benjamina*	4.2 FLORA	Bl-AE2,Hm
PMP	*nuRuq / ma-	lucky	21.2 CULT	Bl-AE4
PMP	*nusa	island	1.3 GEOG	Bl-Hm
PAN	*Nabek	surf, breakers, waves	1.1 NATR	Bl-Hm,AE2
PHF	*NaCéŋ	vegetables	9.1 FOOD,FARM	Ts,Da
PAN	*Najam/ma-	tame, accustomed to	6. FAUNA,FARM	Bl-AE1
PHF	*Nali	cicada	10.1 INSECT	Bl-AE4
PAN	*Nasu	cook by boiling	9. FOOD	Bl-AE1
PHF	*Ná+tad$_2$	front yard; cleared area	12.1 BLDG,LOC	Bl-PAA
PHF	*Naw+Naw	rinse, wash	24. GROOM	Bl-AE3
PAN	*Nukaq / ma-	wound(ed); sore	25. SICK,WAR	Bl-AE1,AE4
PMP	*ñam	savory, tasty	9.1 FLAV	Bl-AE4#413n
PMP	*ñam+ñam	taste [v]; tasty	9.1 FLAV	Bl-AE4
PMP	*ñamúk	mosquito	10.2 INSECT	Dp,HK,Da,Z=
PPH	*ñaŋka?	jackfruit tree , fruit, *Artocarpus*	4.3 FLORA,FOOD	ZED
PMP	*ñaRa	male sibling	20.1 KIN	Bl-SOC
PMP	*ñatuq	timber tree, *Palaquium* spp.	4.2 FLORA	Bl-Hm
PAN	*ñaw	wash, rinse, bathe	24. GROOM	Bl-Root

PMP	*ñeñu	tree, *Morinda citrifolia*	4.2 FLORA	Bl-Hm
PAN?	*ŋájan	name	21. CULT	Ts,Noth
PPH?	*ŋa?+ŋa?	betel chew	28. BETEL	Z=
PMP	*ŋeni	beg, ask for	21.2 CULT	Bl-AE3
PAN	*pa(R)-bĕlí	sell	19. BART	Bl-pc,Z=
PAN	*pa+cek	drive in (as post, nail or wedge)	12. BLDG,MOVE	Bl-AE3
PAN	*paCéy	kill	26. WAR	Dp,Dy,Ts
TAM	xpadáw	sail boat [contrast: *pa-laHud]	2.4 BOAT	Wol
PHN	*padek	husk (of rice)	5.3 FARM,RICE	Bl-AE2
PHF	*pa?én	bait	3.1 FISH	Ts,Z=
PHF	*pa?én	bait	8.1 HUNT	Ts,ZED
PHN?	*pager	fence, enclosure	12.3 BLDG	Dp
PPH	*pag?uŋ	land turtle sp.	3.4 SEA	Z=
PHN?	*páhid	wipe	24. GROOM	Z=
PAN	*pahku	fern, *Athyrium esculentum*	4. FLORA	Z=,Ts,Bl-Hm
PHN	*pahuq	mango, *Mangifera indica*	4.3 FLORA	Bl-Hm
PHF	*pájey	rice plant, unhusked rice, paddy	5.1 RICE,FARM	HK,Bl-CH,Hm,Ts
PAN	*pa-ka-maCéy	kill	26. WAR	Bl-VRR
PHN	*pakan	weft	14. WEAV	Dp
PHF	*pak+pak	wing	7.1 BIRD	Z=
PMP	*páku?	stake; nail	12.2 BLDG	Bl-CH,ZED,Dy
PMP	*pa-laHúd	go to sea [NOT: *para[qh]u]	2.2. BOAT	Dp,Dy,Z=
PPH	*p/al/aká?	frog	6.4 FAUNA	Z=
PHN?	*palí?	cut, wound, scar	25.3 SICK,WAR	Bl-AE1
PHF	*paliSi	taboo	22. RITE	Ts,Z=
PMP	*palu?	hit (with stick or club)	26. WAR	Dp,Bl-PA1,Z=
PMP	*paluja	row, paddle [v; dbl: aluja]	2.2. BOAT	Bl-CH,ZED
PPH	*pamáhaw	breakfast; cold food [cf: *báhaw]	9.4 FOOD	Z=
PAN	*panaq	bow and arrow; to shoot an arrow	8. HUNT,WAR	Bl-CH,Dy,Ts
PMP	*panas/ma-	warm, hot (of weather)	1.3 NATR	Bl-VRR
PMP	*panaw	skin disease leaving white patches	25.2 SICK	Bl-CH,ZED
IND	xpanday	craftsman	18. METAL	HK
PAN	*pánij	wing	7. BIRD	Bl-VRR,Z=
PMP	*păníki	fruit bat	6.2 FAUNA	Z=,Bl-Hm
PHN	*pan+tek	spotted, dappled	29. COLOUR	Bl-AE3
PAN	*paŋud$_2$áN	pandanus tree, *Pandanus tectorius*	4. FLORA	HK,Bl-Hm,Dy,Ts
PMP?	*pa(m)pa/-	tree, *Vitex pubescens*	4.2 FLORA	Bl-AE3,Hm
PMP	*papan	board, plank	12.2 BLDG	ZED,Dy
PHF	*pa-pitú	seven	19.1 NUM	Z=
PHN	*paqét	chisel	12.3 BLDG,TOOL	Dp,Noth,ZED
PHF	*paqíC	bitter	9.1 FLAV	Dp,Dy,Ts,Z=
PHN?	*pariúk	frypan; cooking pot	9.3 FOOD,TOOL	Wol,Bl-NS
PMP	*parud	rasp [v]	12.2 BLDG,TOOL	Dy,Noth,ZED
PMP?	*páRa	storage shelf, rack above hearth	12.2 BLDG	Bl-CH,ZED
PMP	*pa+Raw	hoarse [dbl: *gaRaw]	25.2 SICK	Dp,Bl-AE4
PAN	*páRiS	rayfish, stingray	3. FISH	Dp,HK,Bl-Hm,Dy
PPH	*pasáyan	shrimp sp.	3.4 SEA	Z=
PHF	*pa-Súay	spend time	27. PLAY,CULT	Z=
PHN	*pătúŋ	bamboo sp.	4.3 FLORA	Bl-AE1,Z=
PPH	*pawíkan	sea turtle	3.4 SEA	Z=
PHN	*páyuŋ	umbrella	16. CLOTH	Dp,Noth,ZED
PMP	*pe(R)+cit	squeeze, squirt out	25.2 SICK	Bl-AE4
PMP	*pějés	pain(ful)	25.1 SICK	Dp,Noth,Z=
PMP	*pějés	spicy, hot (food) [cf: *ha-pějés]	9.2 FLAV	Z=
PHF	*pějíq	pain(ful); smart, sting	25.1 SICK	Dp,Z=
PMP	*pened	official gathering	20.1 KIN,CULT	Z=,Bl-CH

PMP	*pěñúh	green sea turtle, tortoise	3.2 SEA	HK,Dy,Bl-Hm,Z
PMP	*pe+ŋah	fork of a branch	4.2 FLORA	Bl-AE3
PMP	*periŋ	bamboo, *Bambusa vulgaris* (?)	4.2 FLORA	Bl-AE1,Hm
PMP	*peRáq	squeeze, wring out	24. GROOM	Dp,Dy,Noth,Z=
PMP	*peRés	squeeze	24. GROOM	Dp,Bl-PA1,Z=
PPH	*peRsah	boil, abscess	25.2 SICK	Z=
PHF	*pesél	squeeze, massage	25.1 SICK	Z=,Bl-PAA
PMP	*pes+pes	squeeze	25.2 SICK	Bl-AE2
PAN	*pijáH	how many?	19. NUM(QP)	Dp,Ts,Z=
PAN	*pik	pat, light slap	21. CULT	Bl-Root
PMP	*pil	attach, join	12.2 BLDG	Bl-Root
PSP	*pila?	wound; scar	25.3 SICK	Z=
PPH	*pí()lat	scar	25.3 SICK	Z=
PHF	*píLay	lame	25.1 SICK	Dy,Ts,Z=
PAN	*píliq	choose, select	19. BART	Dp,Ts,Z=
PHN?	*pírak	silver	18. METAL	Dp,Z=
PHN	*piRah	roe, fish eggs [cf: PAN *biRaS]	3. FISH	Z=,Bl-AE1
PHN	*piRsah	abscess, boil	25.2 SICK	Bl-AE2
PWI	*pisaŋ	banana	5. FARM,FLORA	HK,Dp
PHN	*pisáw	knife	9.3 COOK,WAR	ZED
PHN	*piség	blind in one eye	25.3 SICK	Bl-PAA,Noth
PMP	*pis+pis	squeeze	25.2 SICK	Bl-VRR
PMP	*pítak	mud [cf: PPH *pitek]	5.2 FARM	Bl-AE2
PHN	*pitem	black	29. COLOUR	Bl-pc,Z=
PAN	*pitú	seven	19. NUM	Dp,Da,Ts,ZED
PMP	*pituŋ	bamboo, *Dendrocalamus* [dbl: *bituŋ]	4.2 FLORA	Bl-Hm
PMP	*puaŋ	title of respect	20.1 KIN,SOC	Bl-AE3
PHF	*puCaq	foam, froth, lather [cf: *bujaq]	1.2 NATR	Bl-AE3,Ts
PHN	*púhaR	drive off a bee, smoke bees away	11. BEE	Ch,Bl-PAA
PPH	*pujuq	island	1.5 GEOG	Z=
PHN	*pu+kas	nudity, exposure of the body	16. CLOTH	Bl-AE3
PMP	*puket	dragnet	3.2 FISH	Bl-CH,Dy,ZED
PMP?	*púki?	vagina	27. SEX	Dp,Dy,Noth,Z=
PSP	*puláh	red	29. COLOUR	Z=
PPH	*pulaw	hunt (at night)	8.4 HUNT	Z=
PPH	*púliŋ	blinded by mote in eye	25.4 SICK	Ch,Z=
PHF	*púlu	handle	12.1 BLDG,TOOL	Bl-AE3
PAN	*puluC	mucilaginous plant, *Urena lobata*	4. FLORA	Bl-AE3,Hm,Dp
PAN	*púluq	ten	19. NUM	ZED
PMP	*pulut	bird lime	8.2 HUNT	Bl-CH,ZED
PPH	*púnas.	wipe (off)	24. GROOM	Z=
PAN	*púnay	wild dove	7. BIRD	Ts,Bl-Hm,Z=
PMP?	*puni	tree fern, *Cyathea* sp.	4.2 FLORA	Bl-AE3,Hm
PHN	*punti/-	fish: marine sp.	3.3. FISH	Bl-AE3
PMP	*punti	banana	5.2 FARM,FLORA	Bl-CH,Hm,Dy,Z=
PHF	*púnuq	tree trunk	4.1 FLORA	Dy,Z=
PAN	*puŋ	bunch, cluster	4. FLORA,MEAS	Bl-AE1,Root,Z=
PMP	*puqun	tree trunk	4.1 FLORA	Dp,Dy,Z=
PMP	*purá[h]	red [cf: PSP *puláh]	29. COLOUR	Bl-AE2,Z=
PHN	*púRuq	quail, *Turnix* sp. [dbl: *puyuq]	7.3 BIRD	Bl-AE3,Z=
PHN	*púsa?	cat	6.3 FAUNA	Dp,Z=
CHN	ˣputhaw	iron axe	12.2 METAL	ZED
PAN?	*putíq/ma-	white	29. COLOUR	Dp,Dy,Z=
PHN	*puyuq	quail [dbl: *puRuq]	7.3 BIRD	Bl-AE3
PHF	*qabaŋ	canoe: dugout; boat	2.1 BOAT	Bl-CH,Hm,ZED
PHN?	*qa(m)+baR	tasteless	9.3 FLAV	Z=

PHN	*qabu-2	murrel, *Ophiocephalus striatus*	3.3. FISH	Bl-AE1
PHN	*qa(m)+bud$_2$	strew, scatter	5.3 FARM	Bl-PA3
PAN?	*qabúH	ash(es)	9. COOK	Dp,Dy,Ts,Z=
PMP	*qa+búk	dust [cf: PHN *a+búg]	1.3 NATR	Dp,Dy,Bl-VRR
PHF	*qaCeb	trap	8.1 HUNT	Ts
PAN	*qaCi/ma-	low tide; exposed reef	1.1 NATR	Bl-Hm,Ts
PSP	*qadamay	ramie, *Boehmeria nivea* [cf: *rami]	4.2 FLORA	Ch
PNP	*qadípen	slave [cf: PHN *qudíp-en]	26. WAR	Z=
PHN	*qahlu	pestle	5.3 FARM,TOOL	Z=
PAN	*qa(n)jaw	sun	1.1 NATR	Dp
PHN	*qa+jeŋ	charcoal	9.1 PROD	Dp,Z=
PHF	*qálad	fence	12.1 BLDG	Bl-PAA,AE2
PHN?	*qalámen	grass	4.3 FLORA	Z=
PAN	*qalaq	gather, collect	5. FARM,HUNT	Bl-AE2
PMP	*qalep	beckon, wave	21.2 CULT	Bl-AE4
PHN	*qalhu	pestle	5.3 FARM,TOOL	Z=
PAN	*qaLi-baŋ+baŋ	butterfly	10. INSECT	DyTs,Dy-HM
PMP	*qaliliŋ	shell: cateye shell	3.2 SEA	Bl-AE1,Hm
PHF	*qaLi-mátek	jungle leech	10.1 INSECT	Dp,Bl-MHP,Ts,Z=
PMP	*qali-maŋaw	crab – mangrove	3.2 SEA	Bl-AE1,Hm
PMP	*qali-máŋu	crab – mangrove	3.2 SEA	Bl-AE1,Hm
PHF	*qaLi-meCáq	paddy leech	10.1 INSECT	Bl-AE3,Ts,Z=
PAN	*qalipan	centipede	10. INSECT	Ts,Dapc
PMP	*qa+liR	flow	1.3 NATR	Dp,Bl-VRR,Z=
PAN	*qa-liseSáq	nit	10. INSECT	Da,Ts,Bl-1983,Z=
PAN	*qal(e)jáw	day	1.1 NATR	Dp,Z=
PAN	*qal+sem	sour	9. FLAV	Dp,Dy,Noth,Z=
PMP	*qalu	barracuda, *Sphyraena obtusata*	3.2 FISH	Bl-AE1,Hm
PAN	*qaluHípan	centipede	10. INSECT	Z=
PMP	*qalun	wave	1.3 NATR	Dp,Dy,Z=
PMP	*qalun-an	wooden headrest, pillow	12.2 BLDG,PROD	Bl-AE3
PHF	*qamiS-an	north wind	1.2 NATR,LOC	Bl-Hm,Ts,Z=
PHN	*qanáhaw	palm tree, *Livistona rotundifolia*	4.3 FLORA	Dp,Dy,Z=
PHF	*qanCipa	turtle sp.	3.1 SEA	Ts
PHF	*qanibuŋ	palm, *Caryota* spp.	4.1 FLORA	Bl-Hm
PHF	*qániH	harvest	5.1 FARM	Bl-AE4,Z=
PMP?	*qanilaw	plant, *Grewia* spp.	4.2 FLORA	Bl-Hm
PMP	*qaninu[ŋ]	shadow, reflection	22. RITE	Bl-AE4
PMP	*qaniRuan	bee, *Apis indica*	11. BEE	Bl-AE2
PMP	*qanuliŋ	fruit tree, *Pisonia umbellifera*	4.2 FLORA,FOOD	Bl-AE3,Hm
PHF	*qaNiC	skin of animal, hide, leather	16. CLOTH	Bl-PAA,AE1,Ts
PAN	*qaNíCu	spirit	22. RITE	Dp,Bl-PA1,Ts
PHF	*qaNuáŋ	ruminant sp.; carabao	6.1 FAUNA,FARM	Bl-LVWL,Hm,Ts
PAN	*qaNúNaŋ	tree, *Cordia dichotoma ~ myxa*	4. FLORA,FOOD	Bl-AE4,Hm,Ts
PHF	*qaNúNaŋ	tree, fruit, *Anona reticulata*	4. FLORA,FOOD	Z=
PHF	*qaNúp	hunt, go hunting	8.1 HUNT	Bl-CH,Ts,ZED
PAN	*qañud	drift with current	2. BOAT	Dp,Ts,Bl-Tir
PAN	*qaŋ+	smell of [x]	30. SMEL	Z=
PHF	*qaŋeliC	cooking pot (for scorching); burnt	9.1 + 17. POT	Z=,Bl-AE1,MHP
PMP	*qaŋeliR	fetid, foul-smelling	30. SMEL	Bl-AE3
PMP	*qaŋ+iR	fetid, foul-smelling	30. SMEL	Bl-AE3
PHF	*qaŋ+RiS	strong smell of fish	30. SMEL	Bl-AE4
PHF	*qaŋ+Ru	stench (as of spoiled meat)	30. SMEL	Bl-AE4
PHF	*qaŋ+seR	stench of urine	30. SMEL	Bl-AE4
PHF	*qaŋ+suH	stench	30. SMEL	Bl-AE3
PAN	*qaŋ+Sit	stink, stench, foul-smelling	30. SMEL	Z=,Bl-AE4

PHN	*qapa	rice husk	5.3 FARM,RICE	Bl-Hm
PHF	*qapucuk	peak of a mountain	1.2 GEOG	Bl-AE4
PMP?	*qa+puk	dust	1.3 NATR	Bl-PA3
PAN	*qápuR	lime (for betel quid)	28. BETEL	Bl-CH,Dy,Ts
PMP?	*qaRa?	fig tree, *Ficus* sp.	4.2 FLORA,FOOD	Bl-AE3,Hm
PHN	*qaRáma	crab sp.	3.3 SEA	Bl-AE4
PHF	*qáRaw	snatch, grab	8.1 HUNT	Z=
PHF	*qaRem	scaly anteater, pangolin	6.1 FAUNA	Bl-LVWL,Hm,Ts
PHN	*qaRim?aw	tiger; animal that jumps	6.3 FAUNA	Z=,Bl-Tir
PMP	*qaRta	alien person, outsider; Negrito	21. CULT	Bl-PA1,Z=
PMP	*qaRuas	young mullet, *Neomyxus chaptalii*	3.2 FISH	Bl-AE3,Hm
PMP	*qaRúhu?	pine tree, *Casuarina equisetifolia*	4.2 FLORA	ZED,Bl-Hm,Dy
PMP	*qáRus	current, flow	1.3 NATR	Dp,Da,Z=
PAN	*qasáwa	spouse, wife; husband; marry	20. KIN,SEX	Dp,Bl-VRR,Z=
PAN	*qasíN	salt(y)	9. FLAV,FOOD	Dp,Dy,Ts,Z=
PAN	*qasiRa	salt	9. FOOD	Bl-CH,ZED
PMP	*qasúh	smoke	9.1 COOK	Dp,Dy,Z=
PHF	*qaSelu	pestle	5.1 FARM,TOOL	Bl-CH,Ts,ZED
PMP	*qata	alien person; slave [cf: *qaRta]	26. WAR	Bl-PA1
PAN	*qatěluR	egg [cf: *teluR]	9. FOOD,FOWL	Bl-VRR
PMP	*qatép	thatch roof (usually sago leaf)	12.2 BLDG	Dp,Bl-CH,Noth
PHF	*qatímela	flea	10.1 INSECT	Ts,Bl-AE1,Z=
PMP	*qatulay	fish: big-eyed scad	3.2 FISH	Bl-Hm
PMP	*qatun	fish: tuna, bonito	3.2 FISH	Bl-Hm
PAN	*qauR	bamboo, *Bambusa* sp.	4. FLORA	HK,Dy,Bl-Hm,Ts
PMP	*qawa?	fish: milkfish, *Chanos chanos*	3.2 FISH	Bl-AE1,Hm
PHF	*qáyam	domestic animal: dog, chicken	6.1 FAUNA	Dp,Bl-Hm,Ts,Z=
PHF	*qayám	play [verbal inflection: *qayam-én]	27. PLAY	Dp,Z=
PMP	*qayuyu	crab – coconut	3.2 SEA	Bl-Hm
PHF	*qěbél	smoke	9.1 COOK	Ts,Z=
PSP	*qebúh	cough	25.3 SICK	Z=
PHF	*qeCá	bran, chaff, rice-husk	5.1 FARM,RICE	Bl-Hm,Z=
PHF	*qeCúR	erection	27. SEX	Ch,Z=
PHN	*qe(n)+dem	brood (of a hen)	7.3 BIRD	Bl-AE3
PHF	*qekuŋ	owl	7.1 BIRD	Bl-AE4
PMP	*qelad$_2$	wing	7.2 BIRD	Dp,Bl-AE4
PFM	*qelud$_2$	pillar	12.2 BLDG	Ts
PMP	*qem+peŋ	weir; impede, obstruct, restrain	3.2 FISH	Dy,Bl-AE3
PAN	*qěnay	sand	1.1 NATR	Bl-PA3,Hm,Ts
PHF	*qe+Neb	door(way); close door [cf: *qiNeb]	12.1 BLDG	Ts,Bl-AE4
PHN	*qepah	bran, chaff, rice-husk	5.3 FARM,RICE	Dp,Ch,ZED
PAN	*qiCěluR	egg	9. FOOD,FOWL	Dp,Dy,Ts,ZED
PHN	*qi(n)+Dem	dark, black; obscured	29. COLOUR	Bl-AE3
PAN?	*qilaŋ/ma-	dirty	24. GROOM	Bl-VRR
PMP?	*qilih	mountain range	1.3 GEOG	Bl-Hm
PPH	*qínit/ma-	heat of the sun; sun	1.5 NATR	Z=
PHF	*qi+Neb	close (door)	12.1 BLDG	Bl-AE4
PMP	*qípil	tree, *Intsia bijuga*	4.2 FLORA	Bl-Hm,Dp,Dy,Z=
PHN	*qiRis	slice, dice, cut fine	9.3 FOOD	Dp,Dy,Z=
PAN	*qíSu	fish: shark	3. FISH	HK,Bl-Hm,Dy,Z=
PAN?	*qitém/ma-	black	29. COLOUR	Dp,Bl-PAA,Z=
PMP	*qi(n)tuŋ	count	19.2 NUM,BART	Dp,Dy,ZED
PHF	*qiút	sexual intercourse	27. SEX	Bl-AE4,Z=
PAN	*quáy	rattan (generic?)	4. FLORA	HK,Ts,Bl-Hm,Z
PHF	*qubeŋ	pigpen	6.1 FARM	Ts
PMP	*qú(m)bi	yam, tuber *Dioscorea alata*	5.2 FARM,FOOD	HK,Bl-CH,Hm

PMP	*qú(m)+buj	heart (of plant), pith	4.2 FLORA,FOOD	Dp,Bl-PA1,Z=
PMP	*qud2áŋ	shrimp, lobster, crustacean	3.2 SEA	HK,Dy,Bl-Hm,Z
PHF	*qu+Dem	dim, obscure, dark	29. COLOUR	Bl-AE3
PHN	*qudíp-en	slave [lit. 'will live']	26. WAR	Bl-CH,Z=
PHF	*quHuŋ	mushroom	9.1 FOOD	Ts,Z=
PAN	*qújiŋ	charcoal	9.1 COOK,FIRE	Dp,Bl-AE3
PAN	*qúlej	worm; snake	6. FAUNA,REPT	Da,Dp,Dy,Noth
PAN?	*qules	blanket [cf: *Hules 'upper garment']	14. WEAV	Dp,Ts,Z=
PMP	*quliŋ	rudder; steer	2.2. BOAT	Bl-CH,ZED
PMP	*quluŋa	wooden pillow, headrest	12.2 BLDG,PROD	Bl-CH,ZED
PAN	*quməH	garden, cultivated field, swidden	5. FARM	Dp,Ts,Bl-CH,ZED
PMP	*qumaŋ	crab – hermit	3.2 SEA	Bl-AE1,Hm
PMP	*qumay	fish: unicornfish	3.2 FISH	Bl-Hm,AE2
PMP	*qunéj	inside(s): meat, soft-core, pith	9.2 FOOD,LOC	Bl-AE2,Z=
PMP	*qu-silaq	lightning	1.3 NATR	Bl-VRR
PMP	*qutan	woods, forest	1.3 GEOG	Dp,Dy,Bl-VRR
PHN?	*qutaŋ	debt	19.3 BART	Dp,ZED
PAN	*qutiN	penis	27. SEX	Dp,Dy,Z=
PAN	*quZáN	rain	1.1 NATR	Dp,Dy,Ts
PMP	*ra+ket	sticky, adhesive	12. BLDG,PROD	Bl-AE3
PHN	*ram+bun	cloud [not a raincloud]	1.4 NATR	Sn,Z=
PMP?	*rami	ramie, *Boehmeria nivea* [*qa-damay]	4.2 FLORA	Bl-Hm
PMP	*raŋ+pas	plunder, rob	26. WAR,CULT	Bl-AE3
PHF	*raw+raw	rinse [dbl: *Naw+Naw]	24. GROOM	Bl-AE3
PHN	*renáy	aftermath of a storm	1.4 NATR	Bl-PAA
PHN?	*ríbu	thousand [cf: *Ribu]	19.3 NUM	Dp
PHN	*ri+nis	drizzle	1.4 NATR	Bl-AE3
PAN	*rit	scratch a line	21.1 CULT,PROD	Bl-Root
PMP	*rù(ŋ)guŋ	thunder	1.3 NATR	Bl-AE3,Z=
PAN	*Rabi?iH	night	1.1 NATR	Dp,Ts,Z=
PAN?	*Ra+bun	cloud	1.1 NATR	Bl-PA1,Ch
PHN	*Rakit	raft	2.3 BOAT	Dp,Bl-CH,ZED
PHN	*Rambat	fishnet	3.3. FISH	ZED
PMP	*Rambia	sago [dbl: *rampia, *Rumbia]	5.2 FARM,FOOD	Bl-CH,Hm,ZED
PFM	*RamiC	root	4.2 FLORA	Fer,Z=
PMP	*Ramút	root	4.2 FLORA	Bl-VRR,Ch,Z=
PMP	*Raŋ+kub	cover [dbl: *aŋkub]	9.3 FOOD,PROD	Bl-AE3
PAN	*RaqaNi	bravery, courage [cf: PHN *baRani]	26. WAR	Ts
PMP	*Rátas	milk	9.2 FOOD,BODY	Bl-PAA,PA1,Z=
PMP	*Ratús	hundred	19.2 NUM	Bl-PA1,Dp,ZED
PHN	*Rawéd	betel leaf	28. BETEL	Bl-AE2,Ch,Z=
PMP	*Rawej	vine, aerial root [cf: *waRej]	4.2 FLORA	Ch,Bl-pc
PMP	*Rebek	fly [v]	7.1 BIRD,MOVE	Bl-AE2
PHF	*Re+bun	egg	9. FOOD,FOWL	Ts,Z=
PAN	*Riaq	sword grass, *Imperata cylindrica*	4. FLORA	Bl-Hm,Ts
PHN	*Ríbu	thousand [less likely *ríbu]	19.3 NUM	Ch,Dp,Z=
PPH	*Ridu?	earthquake	1.5 NATR	Sn
PHF	*Ri?ék	thresh [dbl: *iRík]	5.1 FARM	ZED;Bl-AE3
PHN	*Rihuq	tree sp. [lumber?]	4.3 FLORA	Bl-AE3
PMP	*Ruab	tide – high [cf: 'yawn']	1.3 NATR	Bl-Hm
PMP	*Rumaq	lineage, bilateral kin	20.1 KIN	Bl-SOC
PAN	*Rumaq	house, family dwelling	12. BLDG	Dp,Bl-CH,Hs,Ts
PMP	*Rumbia	sago [dbl: *Rambia]	5.2 FARM,FOOD	Bl-Hm
PAN	*RuqaNay/ma-	male	27. SEX	Bl-AE3,Ts
PMP?	*Rusa	deer [dbl: *uRsa]	6.2 FAUNA	Bl-Hm
PPH	*Rutay	hemp	4.4. FLORA,PROD	Z=

PAN	*sa-	one [unit of 10, 100, 1000]	19. NUM	Bl-VRR
PHN	*sabʔa	banana, plantain	5.3 FARM,FOOD	ZED
PHN	*sa(m)báw	soup, broth	9.3 FOOD	Bl-AE2,Z=
PHN	*sá(m)+beR	sow, scatter, broadcast seed	5.3 FARM	Bl-AE3
PHN?	*sábuŋ	cockfight	27. COCK	Dp,Noth,ZED
PHN	*sá(m)+buR	sow, scatter, broadcast seed	5.3 FARM	Z=,Dp
PSP	*saʔeR	floor	12.3 BLDG	Z=
PMP	*saet	spear [n / v]	8.2 HUNT,FISH	Bl-AE3
PNP	*s/ag/ay+say	comb	24. GROOM	Z=
PPH	*saʔ(e)geb	fetch water	9.4 FOOD,CULT	Z=
PMP	*sagúh	sago	5.2 FARM,FLORA	Dp,Dy,ZED
PMP	*sakáy	ride, board	2.2. BOAT	Bl-AE2,Z=
PPH	*sak(e)du	fetch water	9.4 FOOD,CULT	Z=
PMP	*sakít / ma-	be in pain; be sick	25.2 SICK	Dp,ZED,Bl-Tir
PMP	*saku-layaR	sailfish	3.2 FISH	Bl-AE1,Hm
PHF?	*salajeŋ	male of ruminants; buck deer	6.1 FAUNA	Bl-LVWL
PHN	*salambaw	fishnet – large	3.3. FISH	Bl-PAA,ZED
PHN	*salapaʔ	betel nut case or box	28. BETEL	Bl-AE3
PAN	*saláq	sin, error, mistake	21. CULT,RITE	Dp,Dy,Z=
PHN	*salátan	south wind	1.4 NATR,LOC	ZED,Bl-AE3
PHF	*áleŋ	pine tree, *Pinus* sp.	4.1 FLORA	Z=,Bl-Hm,Ts
PHF	*áleŋ	resin [cf: PAN *damaR]	8. HUNT	Z=,Bl-Hm,Ch
PHN?	*saléR	floor slats	12.3 BLDG	Dp,ZED
PMP?	*sa+liR	flow, current	1.3 NATR	Bl-PA3,VRR,Z=
PHF	*áliw	buy, sell; exchange [cf: *báliw]	19. BART	Z=,Bl-AE4
PHN	*sal+sal	blacksmithing [cf: *cal+cal hammer]	18. METAL	Dp,Z=,Bl-PAA,CH
PHN	*saluR	flow	1.4 NATR	Dp,Z=
PHN	*samun	undergrowth	4.3 FLORA	Bl-AE3
PPH	*sa+n-	one [unit of 10, 100, 1000]	19.4 NUM	Z=
PHN	*sanak	to have many children	20.3 KIN	Bl-AE3
PPH	*sa-ŋa-	one [unit of 10, 100, 1000]	19.4 NUM	Z=
PMP	*sa+ŋáh	fork of a branch, bifurcation	4.2 FLORA	Dp,Z=
PMP	*saŋasaŋa	starfish	3.2 FISH	Bl-AE3,Hm
PHF	*sa+paw	field hut (roofed structure)	12.1 BLDG	Z=,Bl-AE2,Hs
PMP	*sapu	broom	24. GROOM	ZED,Dy
PMP?	*sa+puk	dust	1.3 NATR	Bl-VRR
PHF	*saq+saq	split bamboo	12.1 BLDG,FLORA	Bl-AE4
PMP	*saruk	fish net	3.2 FISH	Bl-CH,ZED
PPH	*saRiŋ	banana	5. FARM,FLORA	Z=
PMP	*saRman	outrigger	2.2. BOAT	Bl-CH,ZED
PHN	*saRu	body fluid from a corpse	23. DEATH	Bl-AE4
PMP	*saRu	comb	24. GROOM	ZED,Bl-AE1,CH
PMP	*saRup	sing in unison	27. PLAY,CULT	Bl-AE3
PPH	*sa-siám	nine	19.4 NUM	Z=
PMP	*saut	comb [dbl: suat]	24. GROOM	Bl-AE3
PMP?	*sawáh	snake, python	6.2 FAUNA,REPT	Z=,Dp,Bl-Hm
PMP	*sawaq	channel	1.3 NATR	Bl-Hm
PHN	*sayad	slice	9.3 FOOD,MOVE	Bl-AE3
PHN?	*sayap	fly [v]; wing	7.1 BIRD,MOVE	Bl-AE2,Z=
PHN	*sáyaw	dance	27. PLAY,CULT	Bl-AE2,Z=
PMP	*sebúh	temper metals [water-heat meet]	18. METAL	Bl-AE3,Z=
PPH	*sedaʔ	viand, food eaten with staple	9.4 FOOD	Z=
PHN	*sedsed	grass or rush sp.	4.3 FLORA	Bl-AE3
PAN	*se(n)+duʔ	hiccough	25. SICK	Z=,Bl-AE3
PMP	*se(ŋ)+ger	healthy, feel fit	25.2 SICK	Bl-AE3
PHN	*sějém	ant	10.3 INSECT	Bl-,Z=

PHN	*seleR	current, flowing water	1.4 NATR	Z=,Bl-AE4
PHN	*seli	young shoot [dbl: *semi]	4.3 FLORA	Bl-AE3
PHN	*semi	young shoot [dbl: *seli]	4.3 FLORA	Bl-AE3
PMP	*seŋkar	cross-seat in a boat	2.2. BOAT	Bl-CH,ZED
PAN	*seŋ+seŋ	cork, stopper, plug	9. FOOD,TOOL	Bl-AE3,Ts
PMP?	*seŋaŋ	thorny tree, *Caesalpinia* sp.	4.2 FLORA	Bl-AE3,Hm
PMP	*se+pet	obstructed (of the flow of water)	5.2 FARM	Bl-AE3
PAN	*seŋ+sep	suck	9. FOOD	Dp,Ts
PHN	*se(m)+put	blowgun, blowpipe [dbl: *sumpit]	26. WAR,HUNT	Bl-PA3
PAN?	*siáw	nine	19. NUM	Dp,Ts,ZED
PPH	*sidá?	food served with rice; viand	9.4 FOOD	Z=
PPH	*síduŋ	space under house	12.4 BLDG	Z=
PHN	*sihul	whistle	27. PLAY,CULT	Bl-AE3
PHN	*si(n)jem	ant	10.3 INSECT	Bl-AE2
PHN	*siji	separate the chaff from the grain	5.3 FARM	Bl-AE3,Dp
PHN	*sik+sik	delouse, catch lice	24. GROOM	Ch
PHF	*síLiw	noose, loop	2.1 BOAT,HUNT	DyTs
PMP	*siRi	lily, *Cordyline* or *Dracaena* spp.	4.2 FLORA	Bl-Hm
PMP	*sisi[q]	snail; barnacle spp.	3.2 SEA	Bl-AE1,Hm
PHN	*si?ud	fish net or trap	3.3. FISH	Bl-AE3
PPH	*siyám	nine	19.4 NUM	Z=
PMP	*sual	lever up; digging stick	5.2 FARM,TOOL	Bl-CH,ZED,Dy
PMP	*suan	hoe, digging stick; plant a field	5.2 FARM,TOOL	ZED,Dy
PMP	*suat	comb	24. GROOM	Bl-AE2,Z=
PMP	*suja	bamboo trail or pitfall spikes	8.2 HUNT,WAR	Bl-CH,ZED
PHN	*sújud	fine tooth comb; delouse	24. GROOM	Bl-AE4,Z=
PMP?	*suka	tree, *Gnetum gnemon*	4.2 FLORA	Bl-AE3,Hm
PPH	*sukay	delouse; comb	24. GROOM	Z=
PMP	*suku	clan; 1/4 social subdivision	20.1 KIN,SOC	Bl-SOC
PHF	*su(ŋ)kud	cane, staff, walking stick	25.1 SICK,TOOL	Bl-AE3
PHN?	*súkup	small basket, woven cover	13. BRAID	Reid,Z,Bl-pc
PSP	*sul+day	comb	24. GROOM	Z=
PHN	*suligi?	bamboo spear	8.3 HUNT,WAR	Dp,Dy,Noth,ZED
PMP	*sulúq	torch	8. HUNT	Bl-CH,ZED
PHN	*sumpit	blowgun, blowpipe [dbl: *se(m)put]	26. WAR,HUNT	Dp,Bl-MHP,Z=
PHN	*suŋay	river	1.4 NATR	Dp,ZED
PMP	*supu	boundary, border	20.1 KIN,CULT	Bl-AE3
PHF	*suqaR	thorn	4.1 FLORA	Bl-AE1
PHN	*suq+suq	scrape out meat from a coconut	5.2 COCO	Bl-AE3
PHN	*surambi?	eaves	12.3 BLDG	Dp,Noth,ZED
PHF?	*súrat	write [cf: PHN *súRat]	21.1 CULT	Bl-CH
PHN	*súRat	wound; etch	21.1 CULT	Bl-PAA,Ch,Z=
PHN	*súRuq	command, order	21.3 CULT,RITE	Dp,Dy,Z=
PSF	*SabaR	orchid	4.4. FLORA	Ts
PAN	*Sa-báRat	monsoon wind	1.1 NATR,LOC	ZED,Bl-Hm
PAN	*Sabij	twins of the same sex	20. KIN	Bl-SOC
PHF	*Sădúq	many	19.1 NUM	Bl-AE2,Z=
PHF	*Sedám	borrow	19.1 BART	Dp,Dy,Ts,Z=
PAN	*Sajék	smell, sniff; kiss	30. SMEL	Bl-PA2,Dp,Dy,Ts
PAN	*Sají?	sibling – younger [cf: *ua(n)ji]	20. KIN	Z=,Bl-Voc
PAN	*SaliN	move away, transfer	2. MOVE	Bl-AE3,Z=
PAN	*SamuCí	nightshade, *Solanum nigrum*	4. FLORA	Z=,Ts,Bl-Hm
PAN	*SapaR	lay mats	12. BLDG	Ts
PHF	*Sa-pějíq	pain(ful); smart, sting	25.1 SICK	Dp,Z=
PAN	*Sapúy	fire	9. COOK	Dp,Dy,Ts
PHF	*Sa-Sěpát	four	19.1 NUM	Ch,Z=

PHF	*Sa(n)téd$_2$	convey, escort; give	21. CULT,MOVE	Dp,Dy,Z=
PHF	*Sěmay	rice (generic): unhusked – cooked	5.1 RICE	Bl-CH,Hm,ZED
PHF	*Se+ñáw	wash, rinse	24. GROOM	Ch,Ts
PAN	*Sě(m)pát	four	19. NUM	Dp,Dy,Ts,ZED
PAN	*Sesi	meat, flesh; contents	9. FOOD	Bl-VRR,Ts
PAN	*Siáq/ma-	ashamed, lose face [cf: PSP *heyaq]	21. CULT	Z=,Bl-AE1
PAN	*Si-ka?en	fish	3. FISH,FOOD	Dp,ZED,Bl-pc
PHF	*Sikám	mat	13. BRAID	Z=,Ts
PHF	*SímaR	grease, fat	9.1 FOOD	Ts,Bl-AE1
PHF	*Si(m)paR	opposite shore	1.2 NATR	Ts,Z=
PAN?	*Sisi	meat, flesh; contents	9. FOOD,HUNT	Dp,Dy
PAN	*Suai	mango, *Mangifera indica* [PMP *wai]	4. FLORA	Bl-AE3,Ts
PHF	*Súlij	sleep together/with	27. SEX	Z=
PHF	*Sumay	rice (generic) [dbl: *Hemay]	5.1 RICE	Dy-HM
PHF	*SúRas	wash, rinse	24. GROOM	Dp,Ts,Z=
PHN	*ta+bas	cut away underbrush	5.3 FARM	Bl-AE3
PHN	*tabé?	fat	9.3 FOOD,PROP	Dp,Ts,Z=
PPN	*tabu	taboo	22. RITE	Walsh & Biggs (1966)
PMP	*tá+bun	cover; fill	5.2 FARM	Bl-PA2,Dp,Z=
PMP	*tada	natural cockspur	27. COCK	Bl-AE3
PHN	*ta?eb	high tide	1.4 NATR	Z=,Bl-AE3
PSP	*tag(e)nek	mosquito	10.4 INSECT	Z=
PPH	*tajip	cut, pare	9.3 FOOD,PROD	Ch,Z=
PPHF	*takid	adhere, stick (to)	12. BLDG,PROD	Ts
PPH	*tá+kip	join (together)	12.2 BLDG	Z=
PPH	*talabá	oyster	3.4 SEA	Z=
PHF	*taLam	taste [alt: *taNam]	9.1 FLAV	Ts
PMP	*talaq/man-	morning/evening star (Venus)	1.3 NATR	Bl-AE2,Dp
PMP	*tales	taro, *Colocasia* sp.	5.2 FARM,FOOD	HK,Bl-CH,Hm
PMP	*talísay	tree, *Terminalia catappa*	4.2 FLORA	ZED,Bl-Hm
PMP	*taluk	young plant shoot	4.2 FLORA	Bl-AE3
PMP	*taluki	fabric	16. CLOTH	Bl-AE3
PAN	*tama	father	20. KIN	Bl-Voc
PHN	*tama?	hit the target	8.3 HUNT,WAR	Dp,Z=
PHN	*tamadaw	wild ruminant sp.	6.3 FAUNA	Bl-AE3
PHN?	*tambar	medicine, poultice	25.3 SICK	Dp,Z=
PMP	*tam-búRi	shell: conch; trumpet [cf: *buliq]	3.2 SEA	Bl-CH,Hm,Dy,Z=
PMP	*tamiaŋ	bamboo, *Schizostachyum* sp.	4.2 FLORA	Bl-AE3,Hm
PMP	*tamíŋ	shield – round [cf: *kalasag]	26. WAR	Bl-AE1
PPH	*ta?+mis	sweet	9.3 FLAV	Ts,Z=
PMP	*tanaq	soil, earth, ground, land	5.2 FARM	Dp,Dy
PHN	*tanduk-2	plant sp.	4.3 FLORA	Bl-AE3
PMP	*taneq	earth, soil, ground, land	5.2 FARM	ZED,Dy
PPH	*tanud	thread; needle	15. SEW	Z=
PHF	*taNam	taste [alt: *taLam]	9.1 FLAV	DyTs
PHF	*taNek	cook	9.1 FOOD	Z=,Bl-AE1,VRR
PMP?	*taŋga	plant, *Millingtonia hortensis*	4.2 FLORA	Bl-Hm
PMP	*taŋíRi	Spanish mackerel	3.2 FISH	Dp,Bl-Hm,ZED
PHN	*tápay	yeast; rice wine	28. GROG	Dp,Noth,Z=
PHF	*tapeS	winnow	5. FARM	Bl-CH,ZED,Ts
PMP	*tapis	skirt, sarong, apron	16. CLOTH	Bl-AE3,Ts
PHF	*tápiS	skirt, cloth	16. CLOTH	Ts
PMP	*ta(m)pu	ancestor	20. KIN	Bl-Voc
PHF	*taqén	trap, snare; restrain; endure	8.1 HUNT	Bl-PA3,Noth,Z=
PHN	*taRabas	plant sp., with ceremonial uses	4.3 FLORA	Bl-AE3

PAN	*talʀáq	hew, plane (with adze); cut, hack	12. BLDG,TOOL	Bl-CH,ZED
PMP	*talʀaqan	fish: squirrelfish	3.2 FISH	Bl-Hm
PPH	*talʀenek	mosquito	10.4 INSECT	Z=
PHN	*talʀum	tree, *Indigofera*	4.3 FLORA,PROD	ZED,Bl-Hm
PAN?	*tálʀuq	hide	26. WAR	Dp,Dy,Ts
PMP	*talʀutuŋ	fish: puffer, porcupinefish	3.2 FISH	Bl-AE4#52,Hm
PAN	*ta:+sa	one	19. NUM	Bl-VRR
PMP	*ta:sik	saltwater; sea, ocean	1.3 NATR	Bl-Hm,ZED
PAN	*taSép	winnow	5. FARM	Bl-Hm,Ts,ZED
PHF	*ta-tĕlú	three	19.1 NUM	Z=
PMP	*táu-matáq	person [cf: PAN *Cáu]	21. CULT,SOC	Dp,Bl-VRR
PHN	*táwad$_2$	discount, reduced price	19.3 BART	Dp,ZED
PHN	*tawas	alum	25.3 SICK	Dp,Z=
PHN	*tawas	alum	28. BETEL	Dp,ZED
PHN?	*tázi	artificial cockspur; cockfight	27. COCK	Dp,Bl-AE3#337n
PHN	*tebá?	cutdown/off	12.3 BLDG,MOVE	Bl-NS
PHN	*teba?	fell banana stalk	5.3 FARM	Z=
PAN	*tebaS	cut away, clear vegetation	5. FARM	Bl-AE3
PMP	*tebék	pierce, stab	21.1 CULT,WAR	Bl-NS
PHN	*tebéŋ	fell, topple	12.3 BLDG,MOVE	Z=,Bl-NS
PHN	*teb+teb	cut off, prune; cut down	5.3 FARM	Bl-AE3
PHN	*tĕbús	redeem	19.4 BART	Dp,Z=
PAN	*tĕbúS	sugarcane	5. FARM,FLORA	HK,Bl-CH,Hm,Ts
PHF	*teda?	leftovers; remainder	9.1 FOOD	Z=,Bl-AE3
PHN	*tedés	crush with the thumbnail (as lice)	24. GROOM	Dp,Z=
PHN	*tedis	crush with the thumbnail	24. GROOM	Bl-AE3
PHN	*te(n)+dúk	skewer, pierce [cf: PMP *tuduk]	9.2 FOOD,WAR	Bl-AE2
PMP	*tegel	stubborn, obstinate, unyielding	21.2 CULT,EMOT	Bl-AE3
PMP	*te(ŋ)ger	stubborn, obstinate, unyielding	21.2 CULT,EMOT	Bl-AE3
PHN	*tek	mud	5.3 FARM,NATR	Bl-Root
PMP	*tĕkén	punt, boat punting pole	2.2. BOAT	Dp,Bl-CH,ZED
PAN	*tek+tek	cut, hack	12. BLDG,TOOL	Bl-VRR
PHN	*telaŋ	bamboo sp.	4.3 FLORA	Bl-AE3
PMP	*telem	sink, disappear under water	2.2. BOAT	Bl-AE3
PAN	*tĕlú	three	19. NUM	Dp,Da,Ts,ZED
PAN	*tĕlúR	egg	7. BIRD,FOOD	Dp,Bl-VRR
PHF	*te+neb	submerge	2.1 BOAT	Bl-AE3
PMP	*tenu	tree, *Melochia umbellata*	4.2 FLORA	Bl-Hm
PHF	*tenun-an	loom	14. WEAV	Bl-CH
PMP	*tĕŋéR	mangrove tree, *Ceriops*	4.2 FLORA	ZED,Bl-Hm,Dy
PHN	*tepa	mat; woven material	13. BRAID	Bl-AE3
PMP	*tepiR	mat [pos: *tipeR]	13. BRAID	Z=,Bl-AE3
PAN	*teq	sap, gummy secretion, viscous fluid	1.1 NATR	Bl-Root
PAN	*ter	shiver, tremble	25. SICK	Bl-AE1,Root
PMP	*teriŋ	bamboo sp.	4.2 FLORA	Bl-Hm
PHN?	*terúŋ	eggplant	5.3 FARM,FOOD	Z=
PMP	*teRas	tree, *Intsia bijuga* (?)	4.2 FLORA	Bl-Hm
PMP	*teRep	breadfruit, *Artocarpus* sp.	4.2 FLORA	Bl-Hm
PHN	*tey+tey	suspension bridge; [CCr] ladder	12.3 BLDG	Dp,Z=
PMP	*te+zek	erect; upright	12.2 BLDG	Bl-AE3
PMP	*ti+Dem	dark, obscure; black	29. COLOUR	Bl-AE3
PHN	*tidús	spoon, ladle	9.3 COOK,TOOL	Bl-AE3#74b
PSP	*ti+lad	prepared betel chew mixture	28. BETEL	Z=
PHN	*ti+lem	dark, black	29. COLOUR	Bl-AE3
PMP	*tilu	earwax	24. GROOM	Bl-AE3
PHN	*timeRaq	lead; tin	18. METAL	Bl-PA3,MHP

PMP	*timun	melon; cucumber	5.2 FARM,FOOD	HK,Bl-CH,Hm
PAN?	*timuR	rain wind: S/E	1.1 NATR	Bl-Hm,ZED
PHF	*timus	salt	9.1 FOOD	Bl-VRR,Dy
PAN	*tina	mother	20. KIN	Bl-Voc
PHF	*tine?un	weave (cloth) [cf: *tenun]	14. WEAV	Bl-CH,Ts,ZED
PHF	*tiŋáS	particles of food stuck in teeth	24. GROOM	Ts,Z=
PPH	*tiŋén	look for, hunt out	8.4 HUNT	Z=
PAN	*tip+tip	suck	9. FOOD,MOVE	Bl-VRR
PMP	*tiqaŋ	pillar, post; mast	2.2. BOAT,BLDG	Dy,ZED
PMP	*tir	shiver, tremble, quiver	25. SICK	Bl-Root
PMP	*tiRem	oyster	3.2 SEA	Dy,Bl-Hm,ZED
PHN	*tu?aw	bird and its cry	7.3 BIRD	Bl-AE3
PHN	*tuad$_2$	fish net or trap	3.3. FISH	Bl-AE3
PMP	*tua(n)ji	sibling – younger	20. KIN	Bl-Voc
PHN	*tuan	primary forest	1.4 NATR	Bl-AE3
PPH?	*tubá?	palm toddy/wine	28. GROG	Dp,Z=
PAN	*túbaH	derris root fish poison	3. FISH,FLORA	HK,Bl-CH,Hm
PAN	*tu(m)bak	cowrie shell	3. SEA	Ts
PHN	*túbiR	deep water	1.4 NATR	Dp,Z=
PMP	*tuda?	throw	26. WAR	Bl-AE3
PMP	*tuduk	skewer [cf: PPH *túdek 'pierce']	9.2 FOOD,COOK	Z=,Bl-AE3
PPH	*tudul	give	21. CULT,BART	Z=
PAN	*tud$_2$uq	drip, leak	1.1 NATR	Dp,Dy,Ts
PHN	*tuek	bow the head, nod	21.3 CULT	Bl-AE3
PMP	*tui?	tree, *Dolichandrone spathacea*	4.2 FLORA	Bl-AE3,Hm
PAN	*tukád	runged ladder	12. BLDG	Bl-AE1,AE3#400n
PHN	*tu(ŋ)kad	prop, support, staff	25.1 SICK,TOOL	Bl-AE3
PHN	*tu(ŋ)ked	prop, support, staff	25.1 SICK,TOOL	Dp
PAN	*tuk+tuk	pound (prepared food); knock	9. COOK,FOOD	Ts,Z=
PMP	*tulíh	earwax, cerumen	24. GROOM	Dp,Z=
PHN	*tumaŋ	disagreement	21.3 CULT	Bl-AE3
IND	ˣtumbága	copper	18. METAL	Bl-Tum
PMP	*tumpu	ancestor; lord, master, owner	20. KIN	Dp,Bl-SOC
PAN	*tuNa	eel – freshwater	3. SEA	HK,Dy,Bl-Hm,Ts
PHN	*tuŋ+tuŋ	bamboo internode storage container	9.3 COOK,TOOL	Bl-AE3
PAN	*tuqáS / ma(n)-	parent-in-law (WF); uncle (MB)	20. KIN,AGE	Bl-SOC
PHF	*tuqed$_2$	stump (of a tree)	4.1 FLORA	Bl-AE1,Ts
PAN	*tuq+tuq	hammer, pound; crush	12. MOVE	Bl-AE3
PMP	*turiŋ	fish sp.	3.2 FISH	Bl-AE3
PMP	*turus	house post	12.2 BLDG	ZED,Dy
PMP	*túRaŋ	parent-in-law	20. KIN	Z=,Bl-PAA
PMP	*tusi	draw; etch; write	21.1 CULT	Bl-CH,ZED
PAN	*tut	stench	30. SMEL	Bl-Root,Z=
PMP	*tutuŋ	light, kindle, set fire to, burn	5.2 FARM,COOK	Bl-VRR,Dp
PWI	*tu(n)Zuq	seven	19.4 NUM	Bl-NS
PWI?	*ubat	medicine (powder)	25.3 SICK	Dp,Z=
PHN	*u-dahik	bring up (e.g. boat to shore)	2.3 BOAT	Z=,Bl-AE3
PPH	*udu[?]	medicine; charm	25.3 SICK	Z=
PHN	*ugali?	custom, tradition	21.3 CULT	Bl-AE3
PAN?	*úlaR	snake, worm	6. FAUNA,REPT	Dp,Dy
PHN	*ulat	scar [dbl: *kulad]	25.2 SICK	Bl-AE3,Z=
PNP	*ulíla	orphan [cf: PHN *ílu]	20.3 KIN	Z=
PHN	*um-anak-en	nephew, niece	20.3 KIN	Ch,Z=
PHN	*uŋkir	deny, refuse to accept or believe	21.3 CULT	Bl-AE3
PMP	*upas	poison(ous)	26. WAR	Bl-AE3
PHF	*uReŋ	horn [Iv *uruŋ]	6.1 FAUNA	Bl-LVWL

PHN	*uRsa	deer [dbl: *Rusa]	6.2 FAUNA	Bl-PAA,Z=
PSP	*usá	deer	6.2 FAUNA	Z=
PPH	*úsiŋ	charcoal	9. PROD	Z=
PHN	*úsiR	pursue, chase	26. WAR	Dp,Z=
PAN	*uSaji[H]	younger sibling; kinsman	20. KIN	Z=,Bl-Voc,SOC
PPH	*u+wák	crow [PMP 'harsh ~ loud cry']	7.2 BIRD	Z=,Bl-ACD
PMP	*wáhiR	fresh water	1.3 NATR	Dp,ZED,Bl-ACD
PMP	*wai	mango sp. [cf: PAN *Suai]	4. FLORA	Bl-Hm,ACD
PMP	*wakaR	root	4.2 FLORA	Bl-VRR,ACD
PMP?	*wakat	root	4.2 FLORA	Bl-VRR,ACD
PHF	*wak+wak	caw; crow [cf: PPH *u+wák]	7.2 BIRD	Bl-ACD,Z=
PAN	*walú	eight	19. NUM	Dp,Da,Ts,ZED
PMP	*waŋkaŋ	canoe	2.2. BOAT	Bl-CH,ZED
PFM	*waNuH	honeybee [cf: PMP *wañi]	11. BEE	Ts
PMP	*wañi	honeybee [cf: PFM *waNuH]	11. BEE	Bl-AE3
PMP	*waRej	vine, aerial root [cf: Rawej]	4.2 FLORA	Bl-AE3#434n
PMP	*waRet	root	4.2 FLORA	Bl-AE3
PAN	*waRiH	sun	1.1 NATR	Ts,Dp
PPH	*wásay	adze, axe	12.2 BLDG,TOOL	ZED
PHF	*wa-walú	eight	19.1 NUM	Z=,Bl-ACD
PMP	*wit	hook(shaped)	3.2 FISH,TOOL	Bl-Root,Z=
PHN	*za(ŋ)+kit	contagious, spreading by contact	25.3 SICK	Bl-AE3
PMP	*zalateŋ	stinging nettle, *Laportea* sp.	4.2 FLORA	HK,Dp,Bl-Hm
PHN	*za+ŋaw	insect destructive to rice	10.3 INSECT	Bl-AE3
PMP	*zéqit	sew, patch up (clothing)	15. SEW	Bl-CH,ZED,Dp
PMP	*zariŋ	snare	8.2 HUNT	Bl-CH,ZED
PHF	*zéwah	millet, *Setaria italica*	5.1 FARM,FOOD	Bl-CH,Hm,ZED
PHN	*zazáh	carry around (items for sale)	19.3 BART	Z=
PHN	*zeliŋ	crosseyed [dbl: *zuliŋ]	25.3 SICK	Bl-AE3
PHN	*ziteq	vine from which poison is obtained	4.3 FLORA	Bl-AE3
PHN	*zuliŋ	crosseyed	25.3 SICK	Bl-AE3#439
PHN	*zúluŋ	prow, bow	2.3 BOAT	ZED
PMP	*Zakan	cook	9.2 FOOD	Bl-VRR
PAN	*Zálan	path, trail	1.1 GEOG	Dp,Dy,Ts
PHF	*ZaRámi	rice straw, stubble	5.1 FARM,RICE	Bl-CH,Hm,ZED
PAN	*ZáRum	needle	15. SEW	Dp,Dy,Bl-CH,Z=
PMP	*ZuRúq	sap, syrup	4.2 FLORA,PROD	Dp,Z=

Zorc, R.D.P. "Austronesian culture history through reconstructed vocabulary (an overview)". In Pawley, A.K. and Ross, M.D. editors, *Austronesian Terminologies: Continuity and change*. **C-127:541-594**. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.541*

COMBINED BIBLIOGRAPHY

LIST OF ABBREVIATIONS

BIHP	*Bulletin of History and Philology, Academia Sinica.* Taipei.
BKI	*Bijdragen tot de Taal-, Land- en Volkenkunde.* The Hague.
BSOAS	*Bulletin of the School of Oriental and African Studies.* London.
JPH	*The Journal of Pacific History.* Australian National University, Canberra.
JPS	*The Journal of the Polynesian Society.* Wellington.
KITLV	Koninklijk Instituut voor Taal-, Land- en Volkenkunde. The Hague.
NUSA	*NUSA: Linguistic Studies in Indonesian and Other Languages in Indonesia.* Jakarta.
OL	*Oceanic Linguistics.* University of Hawaii, Honolulu.
OLM	*Oceania Linguistic Monographs.* University of Sydney.
PL	*Pacific Linguistics*, Department of Linguistics, Research School of Pacific and Asian Studies, Australian National University, Canberra.
VKI	*Verhandelingen van het Koninklijk Instituut voor Taal-, Land- en Volkenkunde.* The Hague.
WPAALMS	*Working Papers in Anthropology, Archaeology, Linguistics, Maori Studies.* Department of Anthropology, University of Auckland.
WPLUH	*Working Papers in Linguistics, University of Hawaii.* Honolulu, Hawaii.

Abdul Chaer Mad'ie, 1976, *Kamus dialek Melayu Jakarta-Bahasa Indonesia.* Jakarta: Nusa Indah.

Abdul Jebar Hapip, 1977, *Kamus Banjar-Indonesia.* Jakarta: Pusat Pembinaan dan Pengembangan Bahasa, Departemen Pendidikan dan Kebudayaan.

Abel, Charles W., 1902, *Savage life in New Guinea.* London: London Missionary Society.

Aberle, David F., 1980, Comment on Blust. *Current Anthropology* 21/2:226-230.

Abo, Takaji, Byron W. Bender, Alfred Capelle and Tony DeBrum, 1976, *Marshallese-English dictionary.* PALI Language Texts: Micronesia. Honolulu: University Press of Hawaii.

Adelaar, K. Alexander, 1988, More on Proto-Malayic. In Mohd. Thani Ahmad and Zaini Mohamed Zain, eds *Rekonstruksi dan cabang-cabang Bahasa Melayu Induk*, 59-77. Siri Monograf sejarah Bahasa Melayu. Kuala Lumpur: Dewan Bahasa dan Pustaka.

1989, Malay influence on Malagasy: linguistic and culture-historical inferences. *OL* 28/1:1-46.

1991, New ideas on the early history of Malagasy. In H. Steinhauer, ed. *Papers in Austronesian linguistics* No.1. *PL*, A-81:1-22.

1992, *Proto Malayic: the reconstruction of its phonology and parts of its morphology and lexicon. PL*, C-119. (Revised version of 1985 PhD dissertation, University of Leiden, The Netherlands.)

1994, The classification of the Tamanic languages. In Tom Dutton and Darrell Tryon, eds *Language contact and change in the Austronesian world*, 1-42. Berlin: Mouton de Gruyter.

Adriani, N., 1928, *Bare'e-Nederlandsch woordenboek.* Leiden: Brill.

Akimichi, Tomoya, 1978, The ecological aspect of Lau (Solomon Islands) ethnoichthyology. *JPS* 87/4:301-326.

Akimichi, Tomoya and Sabino Sauchomal, 1982, Satawalese fish names. *Micronesica* 18:1-34.

(back matter) Pawley, A.K. and Ross, M.D. editors. *Austronesian Terminologies: Continuity and change.*
C-127, viii + 631 pages. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.back*

Allen, Jim, 1977a, Fishing for wallabies: trade as a mechanism of social interaction, integration and elaboration on the Central Papuan coast. In Friedman and Rowlands, eds 1977:419-455.

1977b, Management of resources in prehistoric coastal Papua. In J.Winslow, ed. *The Melanesian environment*, 35-44. Canberra: ANU Press.

1977c, Sea traffic, trade and expanding horizons. In Allen et al., eds 1977:387-417.

Allen, Jim, Jack Golson and Rhys Jones, eds, 1977, *Sunda and Sahul: prehistoric studies in southeast Asia, Melanesia and Australia*. London: Academic Press.

Allen, N.J., 1989, The evolution of kinship terminologies. *Lingua* 77:173-185.

Ama, Drummond and Matthew Fitzsimons, n.d., A dictionary of the Zabana language, Santa Isabel, Solomon Islands. MS.

Anderson, Atholl, ed., 1986, *Traditional fishing in the Pacific: ethnographical and archaeological papers from the 15th Pacific Science Congress*. Honolulu: Bernice P. Bishop Museum Department of Anthropology, Pacific Anthropological Records No.37.

Anderson, Mike, 1990, *Sudest field notes*. Dictionaries in Papua New Guinea, vol.11. Ukarumpa, Papua New Guinea: Summer Institute of Linguistics.

Anell, Bengt, 1955, *Contribution to the history of fishing in the southern seas*. Studia Ethnographica Upsaliensia 9.

Antonissen, A., 1958, *Kadazan-English and English-Kadazan dictionary*. Canberra: Government Printer.

Anttila, Raimo, 1972, *An introduction to historical and comparative linguistics*. New York: Macmillan.

Arndt, Paul, 1933, *Gesellschaftliche Verhältnisse im Sikkagebiet (ostl. Mittelflores)*. Ende: Arnoldus.

1954, *Gesellschaftliche Verhältnisse der Ngadha*. Studia Instituti Anthropos 8. Wien-Mödling: Verlag der Missionsdruckerei St Gabriel.

1961, *Wörterbuch der Ngadhasprache*. Studia Instituti Anthropos 15. Fribourg, Switzerland: Posieux.

Ayling, Tony and Geoffrey Cox, 1982, *Collins guide to the sea fishes of New Zealand*. Auckland: Collins.

Bacquie, Barry, 1977, Fishing in Rarotonga. MA thesis, Department of Anthropology, University of Auckland.

Bagnis, R., P. Mazellier, J. Bennett and E. Christian, 1972, *Fishes of Polynesia*. Papeete, Tahiti: Les éditions du Pacifique.

Bailey, F. Manson, 1909, *Comprehensive catalogue of Queensland plants*. Brisbane: Government Printer.

Baldi, Philip, 1988, Comment on Renfrew's *Archaeology and language*. *Current Anthropology* 29/4:445-447.

Baldi, Philip, ed., 1990, *Linguistic change and reconstruction methodology*. Trends in Linguistics Studies and Monographs 45. Berlin: Mouton de Gruyter.

Balgooy, M.M.J. van, 1976, Phytogeography. In Paijmans, ed. 1976:1-22.

Barnes, R.H., 1972, Solorese. In Lebar, ed. 1972:91-94.

Barnett, Gary L., 1978, *Handbook for the collection of fish names in Pacific languages*. *PL*, D-14.

Barrau, Jacques, 1959, The sago palms and other food plants of marsh dwellers in the South Pacific Islands. *Economic Botany* 13:151-162.

1965, Witnesses of the past. *Ethnology* 4:282-294.

Barrau, Jacques, ed., 1963, *Plants and the migrations of Pacific peoples*. Honolulu: Bishop Museum Press.

Barraud, Cécile, 1979, *Tanebar-Evav: une société de maisons tournée vers le large*. Cambridge: Cambridge University Press/Paris: Éditions de la Maison de Sciences de l'Homme.

Beaglehole, Ernest and Pearl Beaglehole, 1938, *Ethnology of Pukapuka*. Honolulu: Bernice P. Bishop Museum Bulletin 150.

n.d., Myths, stories and chants of Pukapuka. Typescript.

Bellwood, Peter S., 1978, *Man's conquest of the Pacific: the prehistory of Southeast Asia and Oceania.* Auckland: Collins. (Also published 1979 New York: Oxford University Press.)

1985, *Prehistory of the Indo-Malaysian archipelago.* New York/Sydney: Academic Press.

1987, *The Polynesians: prehistory of an island people.* London: Thames and Hudson. (1st edn 1978.)

1988, A hypothesis for Austronesian origins. *Asian Perspectives* 26:107-118.

1990, Hierarchy and the earliest Austronesian dispersals. Paper presented to the Comparative Austronesian Project, Department of Anthropology, Research School of Pacific Studies, Australian National University, 25-30 January 1990.

1991, The Austronesian dispersal and the origins of languages. *Scientific American* 265/1:88-93.

Bender, Byron W., 1968, Marshallese phonology. *OL* 7:16-35.

1971, Micronesian languages. In Sebeok, ed. 1971:426-465.

1981, A fossilized article in Marshallese. In Hollyman and Pawley, eds 1981:209-228.

1984, Comment on Marshall. *Current Anthropology* 25/5:625-626.

Bender, Byron W., ed., 1984, *Studies in Micronesian linguistics. PL*, C-80.

Bender, Byron W., Elaine Good, Robert Hsu, Frederick Jackson, Jeff Marck, Sachiko Oda, Kenneth Rehg, Ho-min Sohn, Stephen Trussel and Judith Wang, 1990, *Proto Micronesian word-list.* Computer printout. Department of Linguistics, University of Hawaii.

Bender, Byron W. and Judith W. Wang, 1985, The status of Proto-Micronesian. In Pawley and Carrington, eds 1985:53-92.

Benton, Richard A., 1971, *Pangasinan dictionary.* Honolulu: University of Hawaii Press.

Berlin, Brent, 1992, *Ethnobiological classification: principles of categorization of plants and animals in traditional societies.* Princeton: Princeton University Press.

Berlin, Brent, D.E. Breedlove and P.H. Raven, 1974, *Principles of Tzeltal plant classification; an introduction to the botanical ethnography of Mayan-speaking people of Highland Chiapas.* New York: Academic Press.

Berlin, Brent and Paul Kay, 1969, *Basic color terms, their universality and evolution.* Berkeley: University of California Press.

Besnier, Niko, 1981, *Tuvaluan lexicon.* Funafuti, Tuvalu: U.S. Peace Corps.

Best, Elsdon, 1923, *Polynesian voyagers.* Wellington: Dominion Museum Monograph 5.

1925a, Did the Polynesian voyagers know the double outrigger? *JPS* 32:200-214.

1925b, *The Maori canoe.* Dominion Museum Bulletin No.7. Wellington: Government Printer.

Beyer, H. Otley, 1955, The origin and history of the Philippine rice terraces. *Proceedings of the 8th Pacific Science Congress* 1:387-398.

Biggs, Bruce, 1965, Direct and indirect inheritance in Rotuman. *Lingua* 14:383-415.

1972, Implications of linguistic subgrouping with special reference to Polynesia. In R.C. Green and M. Kelly, eds *Studies in Oceanic culture history*, vol.3. Pacific Anthropological Records 13:143-152. Honolulu: Bishop Museum Press.

1975, *A Mele-Fila vocabulary.* Auckland: Linguistic Society of New Zealand.

1978, The history of Polynesian phonology. In Wurm and Carrington, eds 1978:691-716.

1979, *Proto-Polynesian word list.* Microfiche, *WPAALMS* No.53.

1981, *The complete English-Maori dictionary.* Auckland: Auckland University Press and Oxford University Press.

1990a, *A complete English-Maori dictionary.* Auckland: Auckland University Press.

1990b, A linguist in the New Zealand bush. In W. Harris and P. Kapoor, eds *Nga mahi Maori o te wao nui a Tane: contributions to an international workshop on ethnobotany.* Christchurch: Botany Division DSIR.

1990c, *Me ako taatou i te reo Maaori.* Trans. Cleve Barlow. Orakei: Cleve Barlow.

1991, A linguist revisits the New Zealand bush. In Pawley, ed. 1991:67-72.

n.d., POLLEX. Proto Polynesian computer data file. Department of Anthropology, University of Auckland.

Biggs, B.G., D.S. Walsh and J. Waqa, 1970, *Proto-Polynesian reconstructions with English to Proto-Polynesian finder list. Working Papers in Linguistics.* Auckland: Department of Anthropology, University of Auckland.

Bingham, Hiram, 1908, *Gilbertese-English dictionary.* Cambridge, Mass.: The University Press.

Blackstone, William, 1750, *An essay on collateral consanguinity.* Oxford: Clarendon Press.

1759, *A treatise on the law of descents in fee-simple.* Oxford: Clarendon Press.

Bloomfield, Leonard, 1925, On the sound system of Central Algonquian. *Language* 1:130-156.

1928, A note on sound change. *Language* 5:99-100.

Blust, Robert A., 1969, Some new Proto-Austronesian trisyllables: *WPLUH* 1/10:27-62.

1970, Proto-Austronesian addenda. *OL* 9/2:104-162.

1971, Proto-Austronesian addenda. *WPLUH* 3/1:1-10 (+ corrigenda).

1972a, Additions to 'Proto-Austronesian addenda' [*WPLUH* 3/1:1-107] and 'Proto-Oceanic addenda with cognates in non-Oceanic Austronesian Languages' [*WPLUH* 4/1:1-43]. *WPLUH* 4/8:1-17.

1972b, A note on PAN *qa(R)(CtT)a 'outsiders, alien people'. *OL* 11:166-171.

1972c, Proto-Oceanic addenda with cognates in non-Oceanic Austronesian languages: a preliminary list. *WPLUH* 4/1:1-43.

1973, Additions to 'Proto-Austronesian addenda' and 'Proto-Oceanic addenda with cognates in non-Oceanic Austronesian languages'. *WPLUH* 5/3:33-61.

1974a, Eastern Austronesian: a note. *WPLUH* 6/4:101-107.

1974b, Proto-Austronesian syntax: the first step. *OL* 13:1-15.

1974c, The Proto-North Sarawak vowel deletion hypothesis. PhD dissertation, University of Hawaii.

1976a, Austronesian culture history: some linguistic inferences and their relations to the archaeological record. *World Archaeology* 8/1:19-43. (Also *NUSA* 4:25-37.)

1976b, A third palatal reflex in Polynesian languages. *JPS* 85:339-358.

1977a, The Proto-Austronesian pronouns and Austronesian subgrouping: a preliminary report. *WPLUH* 9/2:1-15.

1977b, A rediscovered Austronesian comparative paradigm. *OL* 16:1-51.

1978a, Eastern Malayo-Polynesian: a subgrouping argument. In Wurm and Carrington, eds 1978:181-234.

1978b, The Proto-Oceanic palatals. *JPS* Monograph No.43, Wellington.

1979, Proto Western Malayo-Polynesian vocatives, *BKI* 135/2-3:205-251.

1980a, Austronesian etymologies. *OL* 19/1-2:1-181.

1980b, Early Austronesian social organization: the evidence of language. *Current Anthropology* 21/2:205-247 (with comments and reply).

1980c, Notes on Proto-Malayo-Polynesian phratry dualism. *BKI* 136:215-247.

1981a, Dual divisions in Oceania: innovation or retention? *Oceania* 52/1:66-80.

1981b, Linguistic evidence for some early Austronesian taboos. *American Anthropologist* 83/2:285-319.

1981c, Some remarks on labiovelar correspondences in Oceanic languages. In Hollyman and Pawley, eds 1981:229-254.

1981d, Variation in retention rate among the Austronesian languages. TICAL paper, Denpasar, Bali.

1982a, The linguistic value of the Wallace line. *BKI* 138/2-3:231-250.

1982b, An overlooked feature of Malay historical phonology. *BSOAS* 45:284-299.

1982c, The Proto-Austronesian word for 'female'. In Carle et al., eds 1982:17-30.

1983, A linguistic key to the early Austronesian spirit world. MS.

1983-84a, Austronesian etymologies - II. *OL* 22-23/1-2: 29-149.

1983-84b, More on the position of the languages of eastern Indonesia. *OL* 22-23/1-2:1-28.

1984a, Comment on Marshall. *Current Anthropology* 25/5:626-628.

1984b, Malaita-Micronesian: an Eastern Oceanic subgroup? *JPS* 93:99-140.

1984c, A Mussau vocabulary, with phonological notes. In *Papers in New Guinea linguistics* No.23. *PL*, A-69:159-208.

1984-85, The Austronesian homeland: a linguistic perspective. *Asian Perspectives* 26/1:45-67.

1985, Review of Brown, *Language and living things: uniformities in folk classification and naming. Language* 61/4:891-897.

1986, Austronesian etymologies - III. *OL* 25/1-2:1-123.

1986-87, Language and culture history: two case studies. *Asian Perspectives* 27/2:205-227.

1987a, Lexical reconstruction and semantic reconstruction: the case of Austronesian "house" words. *Diachronica* 4/1-2:79-106.

1987b, Rennell-Bellona /l/ and the "Hiti" substratum. In Donald C. Laycock and Werner Winter, eds *A world of language: papers presented to Professor S.A. Wurm on his 65th birthday*, 69-79. *PL*, C-100.

1988a, *Austronesian root theory: an essay on the limits of morpohology.* Amsterdam: Benjamins.

1988b, Beyond the morpheme: Austronesian root theory and related matters. In McGinn, ed. 1988:3-90.

1989a, Austronesian etymologies - IV. *OL* 28/2:111-180.

1989b, A note on semantic cycles in historical change. *Diachronica* 6/2:297-300.

1990, Three recurrent changes in Oceanic languages. In Davidson, ed.1990:7-28.

1992a, On speech strata in Tiruray. In M.D. Ross, ed. *Papers in Austronesian linguistics* No.2. *PL*, A-82:1-52.

1992b The position of the Formosan languages: method and theory in Austronesian comparative linguistics. In Li et al., eds 1992:21-55.

1992c, *Tumbaga* in Southeast Asia and South America. *Anthropos* 87:443-457.

1993, Central and Central-Eastern Malayo-Polynesian. In *Proceedings of the First International Conference on Maluku Studies. OL* 32:241-293.

n.d.a, Austronesian comparative dictionary. Computer file. University of Hawaii.

n.d.b, Fieldnotes on languages of northern Sarawak.

forthcoming a, A Lou vocabulary with phonological notes. In Darrell T. Tryon, ed. *Papers in Austronesian linguistics* No.5. *PL*, Series A.

forthcoming b, The Neogrammarian hypothesis and pandemic irregularity. In Mark Durie and Malcolm Ross, eds *The comparative method reviewed.* Oxford University Press.

Blust, Robert, ed., 1981, Historical linguistics in Indonesia. *NUSA* 10.

1991, *Currents in Pacific linguistics: papers on Austronesian languages and ethnolinguistics in honour of George W. Grace. PL*, C-117.

Bodner, Connie C., 1986, On the evolution of agriculture in Central Bontoc. PhD dissertation, University of Missouri, Columbia.

Brandes, Jan Lourens Andries, 1884, Bijdrage tot de vergelijkende klankleer der Westersche Afdeeling van de Maleisch-Polynesische taalfamilie. PhD dissertation, University of Utrecht, The Netherlands.

Bright, William, editor-in-chief, 1992, *International encyclopaedia of linguistics.* 4 vols. New York: Oxford University Press.

Brown, Cecil H., 1982, Where do cardinal direction terms come from? Computer printout, Northern Illinois University.

1984, *Language and living things: uniformities in folk classification and naming.* New Brunswick, New Jersey: Rutgers University Press.

Brown, H.A., 1968, *A dictionary of Toaripi with English-Toaripi index. OLM* No.11.

1986, *A comparative dictionary of Orokolo, Gulf of Papua. PL*, C-84.

Brown, William Henry, 1946, *Useful plants of the Philippines.* Manila, Republic of the Philippines, Department of Agriculture and Commerce, Technical Bulletin No.10.

Bulmer, R.N.H., 1967, Why is the cassowary not a bird? A problem of zoological taxonomy among the Karam of the New Guinea Highlands. *Man* 2:5-25.

1974, Folk biology in the New Guinea Highlands. *Social Science Information* 13:9-28.

Bulmer, Susan, 1971, Prehistoric settlement patterns and pottery in the Port Moresby area. *Journal of the Papua and New Guinea Society* 5/2:29-92.

1979, Prehistoric ecology and economy in the Port Moresby region. *New Zealand Journal of Archaeology* 1:5-27.

1982, West of Bootless Inlet: archaeological evidence for prehistoric trade in the Port Moresby area and the origins of the *hiri*. In Dutton, ed. 1982:117-130.

Burkill, I.H., 1966, *A dictionary of the economic products of the Malay Peninsula* (2nd edn). Kuala Lumpur: Governments of Malaysia and Singapore, Ministry of Agriculture and Cooperatives.

Cabalion, P. and P. Morat, 1983, Introduction à la végétation, à la flore et aux noms vernaculaires de l'Île de Pentecôte (Vanuatu). *Journal d'Agriculture Traditionnelle et de Botanique Appliquée* 30/3-4:197-248.

Cain, A.J. and I.C.J. Galbraith, 1956, Field notes on birds of the eastern Solomon Islands. *Ibis* 98:100-134, 262-295.

Calimag, E., 1965, A Gaddang wordlist with English equivalents. PhD dissertation, Columbia University.

Capell, A., 1941, *A new Fijian dictionary.* Sydney: Australasian Medical Publishing Co. (4th edn 1973, Suva: Government Printer.)

1943, *The linguistic situation in south-eastern Papua.* Sydney: Australasian Medical Publishing Co.

1969, *Grammar and vocabulary of the language of Sonsorol-Tobi. OLM 12.*

1984, *Futuna-Aniwa dictionary, with grammatical introduction. PL*, C-56.

Capell, A. and John Lynch, 1983, Sie vocabulary. In Lynch, ed. 1983:75-147.

Cargill, David, n.d. [1840], Fijian dictionary, copied by Jagger from Mr. Cargill's vocabulary, with items from Mr. Jagger's vocabulary furnished by Rev. Hazlewood. Manuscript in Mitchell Library, Sydney.

Carle, Rainer, Martina Heinschke, Peter W. Pink, Christel Rost and Karen Stadtlander, eds, 1982, *Gava': studies in Austronesian languages and cultures, dedicated to Hans Kähler.* Berlin: Dietrich Reimer.

Carroll, Vern and Tobias Soulik, 1973, *Nukuoro lexicon.* Honolulu: University of Hawaii Press.

Cashmore, C., 1969, Some Proto-Eastern Oceanic reconstructions with reflexes in southeast Solomons languages. *OL* 8/1:1-25.

Casparis, J.G. de, 1956, *Selected inscriptions from the 7th to the 9th century A.D. Prasati Indonesia II.* Bandung: Masa Baru.

Chalmers, J. and W. Wyatt Gill, 1885, *Work and adventure in New Guinea, 1877 to 1885.* London: Religious Tract Society.

Chang Cheng-hsiung, 1978, 1979, *A guidebook for edible plants in colour photos* (2 vols, in Chinese). Taipei.

Charles, Mathew, 1973, Additions to Zorc's Proto-Philippine finder list. Typescript. Cornell University.

1974, Problems in the reconstruction of Proto-Philippine phonology and the subgrouping of the Philippine languages. *OL* 13/1-2:457-509.

Chowning, Ann, 1963, Proto-Melanesian plant names. In Barrau, ed. 1963:39-44.

1980, Comment on R. Blust. *Current Anthropology* 21:231-233.

1984, Comment on Marshall. *Current Anthropology* 25/5:628.

1985, Rapid lexical change and aberrant Melanesian languages: Sengseng and its neighbours. In Pawley and Carrington, eds 1985:169-198.

1991, Proto Oceanic culture: the evidence from Melanesia. In Blust, ed. 1991:43-75.
n.d.a, Fieldnotes.
n.d.b, Molima vocabulary. Typescript.

Chowning, Ann and Ward H. Goodenough, n.d., Bileki (Lakalai, West Nakanai) vocabulary. MS.

Christian, F.W., 1926, The megapode bird and the story it tells. *JPS* 35:260.

Churchward, C.M., 1940, *Rotuman grammar and dictionary comprising Rotuman phonetics and grammar and a Rotuman-English dictionary.* Sydney: Australasian Medical Publishing Co.
1959, *Tongan dictionary.* London: Oxford University Press/Tonga: Government Press.

Clark, Ross, 1980, Eastern Polynesian borrowings in Pukapukan. *JPS* 89:259-265.
1982, Proto-Polynesian birds. In Jukka Siikala, ed. *Oceanic studies: essays in honour of Aarne A. Koskinen*, 121-143. Transactions of the Finnish Anthropological Society No.11. Helsinki: Finnish Anthropological Society.
1984, Comment on Marshall. *Current Anthropology* 25/5:628-629.
1985, Languages of north and central Vanuatu: groups, chains, clusters and waves. In Pawley and Carrington, eds 1985:199-236.
1986, Proto-North-Central Vanuatu interim listing. Typescript and computer printout, Department of Anthropology, University of Auckland.
1988, Proto-North-Central Vanuatu reconstructions. MS.
1991a, *Fingota/Fangota*: shellfish and fishing in Polynesia. In Pawley, ed. 1991:78-83.
1991b, The word is the bird: onomatopoeia in Oceanic ornithonyms. Paper presented at the Sixth International Conference on Austronesian Linguistics, Honolulu.
1992, Austronesian languages. In Bright, ed. 1992:142-44.
n.d., Some Proto-North Central Vanuatu reconstructions with selected supporting evidence. MS.

Clercq, F.S.A. de, 1927, *Nieuw plantkundig woordenboek voor Nederlandsch Indië*, revised by A. Pulle. Amsterdam: J.H. de Bussy.

Clerk, C.C., 1981, The animal world of the Mangaians. PhD thesis, University of London.

Clunn, S.P. and J.A. Kolia, 1977, *A Lala grammar sketch and vocabulary.* Port Moresby: Institute of Papua New Guinea Studies.

Codrington, R.H. and J. Palmer, 1896, *A dictionary of the language of Mota, Sugarloaf Island, Banks' Islands.* London: Society for Promoting Christian Knowledge.

Colenso, W., 1898, *Maori-English lexicon: being a comprehensive dictionary of the New Zealand tongue*, Part 1 *Maori-English.* Wellington: Government Printer.

Collins, James T., 1983, *The historical relationships of the languages of Central Maluku, Indonesia. PL*, D-47.

Conklin, Harold C., 1980, *Ethnographic atlas of Ifugao.* New Haven: Yale University Press.

Constantino, Ernesto, 1971, *Ilokano dictionary.* PALI Language Texts. Honolulu: University of Hawaii Press.

Conte, Eric, 1988, L'exploitation traditionelle des ressources marines à Napuka (Tuamotu-Polynésie française). PhD thesis, Université Paris 1 - Panthéon - Sorbonne.

Cropp, Alan H., 1920-30, Dictionary and grammar of the Petats language of Buka. MS.

Crowley, Susan S., 1986, *Tolo dictionary. PL*, C-91.

Crowley, Terry, 1989, Referential and expressive expansion in Bislama. *English World-Wide* 10/1:85-118.
1990, *An illustrated Bislama-English and English-Bislama dictionary.* Vila: University of the South Pacific.
1992, *A dictionary of Paamese. PL*, C-121.

Cunningham, Clark, 1964, Order in the Atoni house. *BKI* 120:34-68.

Dahl, Otto Christian, 1951, *Malgache et Maanyan: une comparaison linguistique.* Avhandlinger utgitt av Instituttet 3. Oslo: Egede Instituttet.

1973, *Proto-Austronesian.* Scandinavian Institute of Asian Studies Monograph Series No.15. Lund: Studentlitteratur/London: Curzon Press.

1976, *Proto-Austronesian* (2nd rev. edn). Scandinavian Institute of Asian Studies Monograph Series No.15. London: Curzon Press.

1981, *Early phonetic and phonemic changes in Austronesian.* Institute for Comparative Research in Human Culture B, 63. Oslo: Universitetsforlaget.

Dalzell, P., S.R. Lindsay and H. Patiale, 1990, Fisheries resource survey of the island of Niue. Draft report prepared in conjunction with the South Pacific Commmission Inshore Fisheries Research Project and the FAO South Pacific Aquaculture Development Project for the Government of Niue, July 1990.

Danielsson, Bengt, 1954, *Checklist of the native names of fishes of Raroia Atoll. Atoll Research Bulletin* No.32, Washington D.C.

Davidson, Jeremy H.C.S., ed., 1990, *Pacific Island languages: essays in honour of G.B. Milner.* London: School of Oriental and African Studies, University of London/Honolulu: University of Hawaii Press.

Davies, John, 1851, *A Tahitian and English dictionary.* Tahiti: London Missionary Society.

Dempwolff, Otto, 1924-25, Die L-, R- und D-Laute in austronesischen Sprachen. *Zeitschrift für Eingeborenen-Sprachen* 15:19-50, 116-138, 223-238, 273-319. Berlin: Dietrich Reimer.

1926, Ivatan als 'Test-Sprache' für uraustronesisches L. *Zeitschrift für Eingeborenen-Sprachen* 16:298-302. Berlin: Dietrich Reimer.

1929, Das austronesische Sprachgut in den polynesischen Sprachen. *Koninklijk Bataviaasch Genootschap van Kunsten en Wetenschappen*, Feestbundel 1:62-86.

1931, Wörter der Nissan-Sprache. *Zeitschrift für Eingeborenen-Sprachen* 21:252-256. Berlin: Dietrich Reimer.

1934-38, *Vergleichende Lautlehre des austronesischen Wortschatzes,* 1: *Induktiver Aufbau einer indonesischen Ursprache* (1934); 2: *Deduktive Anwendung des Urindonesischen auf austronesische Einzelsprachen* (1937); 3: *Austronesisches Wörterverzeichnis* (1938). *Zeitschrift für Eingeborenen-Sprachen*, supplements 15, 17, 19. Berlin: Dietrich Reimer.

Denoon, Donald J. and Roderic Lacey, eds, 1980, *Oral tradition in Melanesia.* Port Moresby: University of Papua New Guinea and Institute of Papua New Guinea Studies.

Descantes, C., 1990, Symbolic stone structures: protohistoric and early historic spatial patterns of the 'Opunohu Valley, Mo'orea, French Polynesia. MA thesis, University of Auckland, Auckland.

Diebold, A.R. Jr, 1985, *The evolution of Indo-European nomenclature for salmonid fish: the case of 'Huchen' (Hucho spp.). Journal of Indo-European Studies* Monograph No.5. Washington: Institute for the Study of Man.

1987, Linguistic ways to prehistory. In Skomal and Polomé, eds 1987:59-71.

Donegan, Patricia Jane and David Stampe, 1983, Rhythm and the holistic organization of language structure. In John F. Richardson, Mitchell Marks and Amy Chukerman, eds *Papers from the Parasession on the Interplay of Phonology, Morphology and Syntax,* 337-351. Chicago Linguistic Society.

Doran, Edwin, 1981, *Wangka: Austronesian canoe origins.* College Station: Texas A & M University Press.

Dordillon, René I., 1931, *Grammaire et dictionnaire de la langue des Îles marquises.* Paris: Institut d'Ethnologie.

Dougherty, Janet W.D., 1983a, *West Futuna-Aniwa: an introduction to a Polynesian Outlier language.* Berkeley: University of California Press.

1983b, *West Futuna grammar and dictionary.* University of California Publications in Linguistics, vol.102. Berkeley: University of California Press.

Drabbe, P., 1932a, *Woordenboek der Fordaatsche taal.* Verhandelingen van het Bataviaasch Genootschap 7. Bandoeng: Nix.

1932b, *Woordenboek der Jamdeensche taal.* Verhandelingen van het Bataviaasch Genootschap 71. Bandoeng: Nix.

Dunnebier, W., 1951, *Bolaang Mongondowsch–Nederlandsch woordenboek.* The Hague: Nijhoff.

Dutton, T.E., 1970, Notes on the languages of the Rigo area of the Central District of Papua. In Wurm and Laycock, eds 1970:879-983.

1971, Languages of south-east Papua: a preliminary report. *PL*, A-28:1-46.

1973, "Cultural" items of basic vocabulary in the Gulf and other districts of Papua (Part 1: Foodstuffs and associated agricultural terms). In Franklin, ed. 1973:413-538.

1978, Language and trade in central and south-east Papua. *Mankind* 11:341-353.

1982, Borrowing in Austronesian and non-Austronesian languages of coastal south-east mainland Papua New Guinea. In Halim, Carrington and Wurm, eds 1982a:109-177.

1985, *Police Motu: iena sivarai (its story).* Port Moresby: University of Papua New Guinea Press.

1994, Motu-Koiarian contact, Papua New Guinea. In T.E. Dutton and D.T. Tryon, eds *Language contact and change in the Austronesian world*, 181-232. Berlin: Mouton de Gruyter.

Dutton, T.E., ed., 1975, *Studies in languages of central and south-east Papua. PL*, C-29.

1982, *The hiri in history: further aspects of long-distance Motu trade in central Papua.* Pacific Research Monograph No.8. Canberra: Australian National University.

Dye, Tom, 1983, Fish and fishing on Niuatoputapu. *Oceania* 53:242-271.

1987, Comment on Kirch and Green's "History, phylogeny and evolution in Polynesia". *Current Anthropology* 28/4:445-446.

Dyen, Isidore, 1947, The Tagalog reflexes of Malayo-Polynesian *D. *Language* 23:227-238.

1949, On the history of the Trukese vowels. *Language* 25:420-436.

1951, Proto-Malayo-Polynesian *Z. *Language* 27:534-540.

1953a, Dempwolff's *R. *Language* 29:577-590.

1953b, *The Proto-Malayo-Polynesian laryngeals.* Baltimore: Linguistic Society of America.

1956, The Ngaju Dayak 'old speech stratum'. *Language* 32:83-87.

1965a, Formosan evidence for some new PAN phonemes. *Lingua* 14:285-305.

1965b, *A lexicostatistical classification of the Austronesian languages.* Baltimore: Linguistic Society of America.

1971a, The Austronesian languages and Proto-Austronesian. In Sebeok, ed. 1971:5-54. The Hague: Mouton.

1971b, The Austronesian languages of Formosa. In Sebeok, ed. 1971:168-199.

1976, Some cultural characteristics of the Proto-Austronesians. *Actes du 29e Congrès International des Orientalistes, Indonésie* 2:70-77.

1985, Lexical reconstruction and the semantic history hypothesis. In Adam Makkai and Alan K. Melby, eds *Linguistics and philosophy: essays in honor of Rulon S. Wells,* 343-391. Amsterdam: Benjamins.

1990, Homomeric lexical classification. In Baldi, ed. 1990:211-230.

1992, The internal and external classification of the Formosan languages. In Li et al., eds.1992:162-196.

n.d., The linguistic evidence for early Austronesian social organization. MS. Draft of paper prepared at Yale University, New Haven.

Dyen, Isidore and David F. Aberle, 1974, *Lexical reconstruction: the case of the Proto-Athapaskan kinship system.* London: Cambridge University Press.

Dyen, Isidore and Curtis McFarland, 1970, Proto-Austronesian etyma constituting an Austronesian cognate finder list. Mimeo, Yale University.

Dyen, Isidore and Shigeru Tsuchida, 1986, Proto-Austronesian laterals and nasals. In Geraghty, Carrington and Wurm, eds, 1986:23-31.

Earle, T.K., 1987, Chiefdoms in archaeological and ethnohistorical perspective. *Annual Review of Anthropology* 16:279-308.

Early, Robert, n.d., Fieldnotes.

Eastman, G.H., 1948, *An English-Gilbertese vocabulary*. Beru, Kiribati: The London Mission Press.

Echols, J.M. and Hassan Shadily, 1963, *An Indonesian-English dictionary*. Ithaca, NY: Cornell University Press.

1989, *An Indonesian-English dictionary* (rev. edn). Ithaca, New York: Cornell University Press.

Egerod, Søren, 1980, *Atayal-English dictionary*. Scandinavian Institute of Asian Studies Monograph Series No.35. London: Curzon Press.

Elbert, Samuel H., 1947, *Trukese-English and English-Trukese dictionary*. Pearl Harbour: United States Naval Military Government.

1972, *Puluwat dictionary*. *PL*, C-24.

1975, *A dictionary of the language of Rennell and Bellona*, Part 1. Copenhagen: National Museum of Denmark.

Elkins, Richard E., 1968, *Manobo-English dictionary*. *OL* Special Publication No.3. Honolulu: University of Hawaii Press.

1974, Proto-Manobo word list. *OL* 13:601-641.

Elkins, Richard E. and Gail R. Hendrickson, 1984, *A sampling of Philippine kinship patterns*. Manila: Summer Institute of Linguistics.

English, Leo J., 1965, *English-Tagalog dictionary*. Manila: Department of Education, Republic of Philippines.

Eringa, F.S., 1984, *Soendaas-Nederlands Woordenboek*. Dordrecht, The Netherlands/Cinnaminson, USA: Foris Publications.

Fakamuria, Kenneth, n.d., West Futuna fish names. MS.

Falla, R.A., R.B. Sibson and E.G. Turbott, 1978, *Collins guide to the birds of New Zealand and outlying islands*. Auckland: Collins.

Fauconnier, Gilles, 1985, *Mental spaces: aspects of meaning construction in natural language*. Cambridge, Mass.: The MIT Press.

Feinberg, Richard, 1981, *Anuta, social structure of a Polynesian island*. Provo: Institute for Polynesian Studies, Brigham Young University Press.

Ferrell, Raleigh, 1969, *Taiwan aboriginal groups: problems in cultural and linguistic classification*. Academica Sinica Monograph No.17. Nankang, Taipei: Institute of Ethnology.

1982, *Paiwan Dictionary*. *PL*, C-73.

Fey, Virginia, 1986, *Amis dictionary*. Taiwan: The Bible Society.

Fielder, Don, n.d., A Hula vocabulary. Typescript.

Filipec, J. and F. Čermák, 1985, *Česká lexikologie*. Praha: Academia.

Finney, Ben R., 1979a, *Hokule'a: the way to Tahiti*. New York: Dodd, Mead.

1979b. Voyaging. In J.D.Jennings, ed. *The Prehistory of Polynesia*, 323-351. Harvard University Press.

Firth, Raymond, 1957, *We, the Tikopia* (2nd edn). London: Allen & Unwin.

1985, *Tikopia-English dictionary: Taranga fakatikopia ma taranga fakainglisi*. Auckland: Auckland University Press and Oxford University Press.

Fischer, H. Th., 1957, Some notes on kinship systems and relationship terms of Sumba, Manggarai and south Timor. *Internationales Archiv für Ethnographie* 48:1-31.

Foley, William Auguste, 1976, Comparative syntax in Austronesian. PhD dissertation, University of California (Berkeley).

Forman, Michael L., 1971, *Kapampangan dictionary*. Honolulu: University of Hawaii Press.

Fortgens, J., 1921, *Bijdrage tot de kennis van het Sobojo (eiland Taliabo, Soela-groep)*. The Hague: Nijhoff.

Forth, Gregory, 1981, *Rindi: an ethnographic study of a traditional domain in eastern Sumba*. The Hague: Nijhoff.

1985, Layia: the evolutionary implications of some Sumbanese affinal terms. *Sociologus* 35/2:120-141.

1990, From symmetry to asymmetry: an evolutionary interpretation of East Sumbanese relationship terminology. *Anthropos* 85:373-392.

Fortune, R.F., 1963, *Sorcerors of Dobu: the social anthropology of the Dobu islanders of western Melanesia*. New York: E.P. Dutton. (1st edn 1932, London: Routledge.)

Fourmanoir, Pierre and Pierre Laboute, 1976, *Poissons de Nouvelle Calédonie et des Nouvelles Hébrides*. Tahiti: Les éditions du Pacifique.

Fox, Charles E., 1955, *A dictionary of the Nggela language (Florida, British Solomon Islands)*. Auckland: Unity Press.

1970, *Arosi-English dictionary*. *PL*, C-11.

1974, *Lau dictionary, with English index*. *PL*, C-25.

1978, *Arosi dictionary*. Revised edition with English-Arosi index prepared by Mary Craft. *PL*, C-57.

Fox, James J., 1971, Sister's child as plant: metaphors in an idiom of consanguinity. In R. Needham, ed. *Rethinking kinship and marriage*, 219-252. London: Tavistock.

1972, The Sikanese. In Lebar, ed. 1972:88-90.

1980a, Comment on Blust, "Early Austronesian social organization: the evidence of language". *Current Anthropology* 21/2:233-235.

1980b, Introduction. In Fox, ed. 1980:1-18.

1980c, Models and metaphors: comparative research in eastern Indonesia. In Fox, ed. 1980:327-333.

1988a, Origin, descent and precedence in the study of Austronesian societies. Public lecture in connection with De Wisselleerstoel Indonesische Studien (University of Leiden), given on 17 March 1988. MS.

1988b, Possible models of early Austronesian social organization. *Asian Perspectives* 26/1:35-43.

forthcoming, Origin structures and systems of precedence in the comparative study of Austronesian societies. In Li et al., eds *Austronesian studies relating to Taiwan*.

Fox, James J., ed., 1980, *The flow of life: essays on eastern Indonesia*. Cambridge, Mass.: Harvard University Press.

Fox, James J. and E. Douglas Lewis, 1993, Ata Sikka of Flores, Eastern Indonesia. In P. Hocking, ed. *The encyclopedia of world culture*, vol.5: *East and Southeast Asia*, 19-22. Boston: G.K. Hall and Co.

Fox, Robin, 1967, *Kinship and marriage*. Harmondsworth, Middlesex: Penguin Books.

Franklin, Karl, ed., 1973, *The linguistic situation in the Gulf District and adjacent areas, Papua New Guinea*. *PL*, C-26.

Freeman, J.D., 1960, The Iban of Western Borneo. In G.P. Murdock, ed. *Social structure in Southeast Asia*, 65-87. Chicago: Quadrangle Books.

French-Wright, Renwick, 1983, Proto-Oceanic horticultural practices. MA thesis, University of Auckland.

Friederici, Georg, 1928, Die vorkolumbischen Verbindungen der Südseevölker mit Amerika. *Mitteilungen aus den Deutschen Schutzgebieten* 36:27-51.

1933, Forschung und Umschau des Auslegergeschirres der Südsee boote. *Ethnologischer Anzeiger* 3:187-201.

Friedman, J. and M.J. Rowlands, eds, 1977, *The evolution of social systems.* London: Duckworth.

Frimigacci, D., A. Di Piazza, C. Sand, B. Vienne and J.P. Siorat, 1988, *Etude ethno-archéologique et ethnobotanique de l'Ile de Futuna.* Noumea: ORSTOM, Rapports d'activité Sciences Sociales, Archéologie No.1.

Fuentes, Jordi, 1960, *Dictionary and grammar of the Easter Island language.* Santiago de Chile: Editorial Andrés Bello.

Gamkrelidze, T.V. and V.V. Ivanov, 1984, *Indojevropejskij jazyk i indojevropejcy.* Tbilisi: Publishing House of the Tbilisi State University.

Garanger, José, 1972, *Archéologie des Nouvelles-Hébrides: contribution à la connaissance des îles du Centre.* Paris: Office de la Recherche Scientifique et Technique d'Outre-Mer. Publication de la Société des Océanistes, N° 30, Musée de l'Homme.

Geerts, P., 1970, *'Āre'āre dictionary. PL*, C-14.

Genderen Stort, P. van, 1916, *Nederlandsch-Tidoengsch-Tinggálàn Dájàksche woordenlijst.* The Hague: Nijhoff/Batavia: Albrecht.

Geraghty, Paul, 1983, *The history of the Fijian languages. OL* Special Publication 19. Honolulu: University of Hawaii Press.

1984, Fijian bird names. In Fergus Clunie, *Birds of the Fiji bush*, 137-157. Suva: Fiji Museum.

1986, The sound system of Proto-Central-Pacific. In Geraghty, Carrington and Wurm, eds 1986:289-312.

1989a, Linguistic evidence for the Tongan Empire. Paper presented at the Comparative Austronesian Project Symposium on Contact-induced Language Change, 26 August-1 September 1989, at the Department of Linguistics, Research School of Pacific Studies, Australian National University.

1989b, The reconstruction of Proto-Southern Oceanic. In Harlow and Hooper, eds 1989:141-156.

1990, Proto-Eastern Oceanic *R and its reflexes. In Davidson, ed. 1990:51-93.

in press, Pulotu, Polynesian homeland? To appear in *JPS.*

Geraghty, Paul, Lois Carrington and S.A. Wurm, eds, 1986, *FOCAL II: Papers from the Fourth International Conference on Austronesian Linguistics. PL*, C-94.

Geraghty, Paul and Andrew Pawley, 1981, The relative chronology of some innovations in the Fijian languages. In Hollyman and Pawley, eds 1981:159-178.

Gericke, J.F.C. and T. Roorda, 1901, *Javaansch-Nederlandsch handwoordenboek (vermeerderd en verbeterd door A. C. Vreede).* Amsterdam: Muller.

Gillett, Robert, 1985, *Traditional tuna fishing in Tokelau.* Noumea, New Caledonia, South Pacific Commission, SPREP Topic Review No. 27.

1990, The mystery of the 'O' fish. *SPC Fisheries Newsletter* 54:29-30. Nouméa, New Caledonia: South Pacific Commission.

Gimbutas, Marija, 1988, Indo-Europeans: guests or hosts? *Quarterly Review of Archaeology* 9/1:1-2.

Gladwin, T., 1970, *East is a big bird.* Cambridge, Mass.: Harvard University Press.

Golson, J., ed., 1963, *Polynesian navigation.* Wellington: Polynesian Society.

Gonda, J., 1952, *Sanskrit in Indonesia.* Sarasvati Vihara Series 28. Nagpur, India: International Academy of Indian Culture.

Goo, Fannie C.C. and Albert Banner, 1963, *Preliminary compilation of Samoan plant and animal names.* Honolulu, Hawaii: Marine Laboratory, University of Hawaii.

Goodenough, Ward H., 1986, Sky world and this world: the place of Kachaw in Micronesian cosmology. *American Anthropologist* 88:551-568.

Goodenough, Ward H. and Hiroshi Sugita, 1980, *Trukese-English dictionary.* Memoirs of the American Philosophical Society, vol.141. Philadelphia: American Philosophical Society.

1990, *Trukese-English dictionary, Supplementary Volume: English-Trukese and index of Trukese word roots.* Philadelphia: American Philosophical Society.

Gordon, John L., 1980, The marriage nexus among the Manggarai of west Flores. In Fox, ed. 1980:48-67.

Gosline, William A. and Vernon E. Brock, 1965, *Handbook of Hawaiian fishes.* Honolulu: University of Hawaii Press.

Gowers, Sheila, 1976, *Some common trees of the New Hebrides and their vernacular names.* Port Vila: Forestry Section, Department of Agriculture.

Graaff, S. De and D.G. Stibbe, 1918. *Encyclopaedie van Nederlandsch-Indië*, vol.2: *H-M.* The Hague: Nijhoff.

Grace, George W., 1966, Austronesian lexicostatistical classification: a review article. *OL* 5:13-31.

1969, A Proto-Oceanic finder-list. *WPLUH* 1/2:39-84.

1975, *Canala dictionary (New Caledonia). PL*, C-2.

1976, *Grand Couli dictionary (New Caledonia). PL*, C-12.

1990, The "aberrant" (vs. "exemplary") Melanesian languages. In Baldi, ed. 1990:155-173.

Green, Roger C., 1971, Evidence for the development of the early Polynesian adze kit. *New Zealand Archaeological Newsletter* 14/1:12-44.

1975, Adaptation and change in Maori culture. In Kuschel, ed. 1975:591-641.

1981, Location of the Polynesian homeland: a continuing problem. In Hollyman and Pawley, eds 1981:133-158.

1986a, Lapita fishing: the evidence of site SE-RF-2 from the Main Reef Islands, Santa Cruz Group, Solomons. In Anderson, ed. 1986:119-135.

1986b, Some basic components of the Ancestral Polynesian settlement system: building blocks for more complex Polynesian societies. In Kirch, ed. 1986:50-54.

1987, The initial identification of a people as Polynesian in race, language and culture. In Reginald Auger, Margaret F. Glass, Scott MacEachern and Peter H. McCartney, eds *Ethnicity and culture*, 175-180. Calgary: University of Calgary Archaeological Association.

1991a, The Lapita cultural complex: current evidence and proposed models. In P. Bellwood, ed. *Indo-Pacific prehistory 1990*, vol.2. *Bulletin of the Indo-Pacific Prehistory Association* 11:295-305. Canberra: Australian National University.

1991b, Near and remote Oceania – disestablishing "Melanesia" in culture history. In Pawley, ed. 1991:491-502.

1992, Linguistic, biological, and cultural origins of the initial inhabitants of Remote Oceania. Paper presented at the Prehistoric Mongoloid Dispersals Symposium, November 1992. Tokyo: University of Tokyo.

1993, Tropical Polynesian prehistory – where are we now? In M. Spriggs, D. Yen, W. Ambrose, R. Jones, A. Thorne and A. Andrews, eds *A community of cultures: the people and prehistory of the Pacific*, 218-238. Occasional Papers in Prehistory 21. Canberra: Australian National University.

Green, R.C., K. Green, R. Rappaport, A. Rappaport and J. Davidson, 1967, *Archaeology on the island of Mo'orea, French Polynesia.* Anthropological Papers of the American Museum of Natural History 51/2. New York.

Greenberg, Joseph H., 1957, *Essays in linguistics.* Chicago: University of Chicago Press.

1988, Review of Renfrew's *Archaeology and language: the puzzle of Indo-European origins. American Anthropologist* 90/4:1029-1030.

Grey, Sir George, 1928, *Nga mahi a nga tupuna* (3rd edn, edited by H.W. Williams). New Plymouth: Thomas Avery and Sons.

Grimes, C.E., 1991, The Buru language of eastern Indonesia. PhD thesis, Australian National University.

Grimes, C.E. and Takashi Matsumura, 1990, Unpublished word list. Summer Institute of Linguistics.

Gueunier, N.J., 1987, *Lexique du dialecte Malgache de Mayotte (Comores).* Paris: Institut National des Langues et Civilisations Orientales.

Haddon, A.C., 1937, *Canoes of Oceania*, vol.2: *The canoes of Melanesia, Queensland and New Guinea.* Honolulu: Bishop Museum Press, Special Publication 28.

Haddon, A.C. and James Hornell, 1938, *Canoes of Oceania*, vol.3: *Definition of terms, general survey, and conclusions.* Honolulu: Bishop Museum Press, Special Publication 29.

Halim, Amran, Lois Carrington and S.A. Wurm, eds, 1982a, *Papers from the Third International Conference on Austronesian Linguistics*, vol.1: *Currents in Oceanic. PL*, C-74.

1982b, *Papers from the Third International Conference on Austronesian Linguistics*, vol.2: *Tracking the travellers. PL*, C-75.

Hamel, Patricia J., 1994, *A grammar of Loniu. PL*, C-103.

Hancock, I.R. and C.P. Henderson, 1988, *Flora of the Solomon Islands.* Research Bulletin No.7. Honiara: Ministry of Agriculture and Lands.

Hardeland, August, 1858, *Versuch einer Grammatik der dajackschen Sprache.* Amsterdam: Frederik Muller.

1859, *Dajaksch-Deutsches Wörterbuch.* Amsterdam: Frederik Muller.

Harlow, Ray, 1990, *A name and word index to Nga Mahi a nga Tuupuna.* Dunedin: University of Otago Press.

Harlow, Ray and A.H.F. Thornton, 1986, *A name and word index to Nga Moteatea.* Dunedin: University of Otago Press.

Harlow, Ray and Robin Hooper, eds, 1989, *VICAL 1: Oceanic languages: papers from the Fifth International Conference on Austronesian Linguistics.* Auckland: Linguistic Society of New Zealand.

Harrison, S.P., 1989, Linguistic evidence for Polynesian influence in the Gilbert Islands. MS. Department of Anthropology, University of Western Australia.

Harrison, Sheldon and Salich Albert, 1977, *Mokilese-English dictionary.* Honolulu: University Press of Hawaii.

Haudricourt, André-Georges, 1971, New Caledonia and the Loyalty Islands. In Sebeok, ed. 1971:359-396.

Haudricourt, André-Georges and Françoise Ozanne-Rivierre, 1982, *Dictionnaire thématique des langues de la région de Hienghène (Nouvelle-Calédonie).* LACITO documents: Asie-Austronésie, 4. Paris: SELAF.

Hazeu, G.A.J., 1907, *Gajōsch-Nederlandsch woordenboek.* Batavia: Landsdrukkerij.

Headland, Thomas N. and Janet D. Headland, 1974, *A Dumagut (Casiguran) English dictionary. PL*, C-28.

Held, G.J., 1942, *Woordenlijst van het Waropensch (Nederlandsch Noord Nieuw-Guinea).* Bandoeng: Nix.

Helfrich, O.L., 1904, *Bijdragen tot de kennis van het Midden Maleisch [Bèsèmahsch en Sèrawajsch dialect].* Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen 53. Bandoeng: Nix.

Henderson, C.P. and I. R. Hancock, 1988, *A guide to the useful plants of the Solomon Islands.* Honiara: Ministry of Agriculture and Lands.

Henderson, James and Anne Henderson, 1987, *Dictionaries of Papua New Guinea*, vol.9: *Rossel language.* Ukarumpa, Papua New Guinea: Summer Institute of Linguistics.

Herald, Eric Stannard, 1962, *Living fishes of the world* (rev. edn). New York: Doubleday.

Hertz, Robert, 1973 [1909], The pre-eminence of the right hand: a study of religious polarity. In Needham, ed. 1973:3-31.

Heyne, K., 1950, *De nuttige planten van Indonesië* (3rd edn). The Hague: W. van Hoeve.

Hicks, David, 1976, Tetum ghosts and kin: fieldwork in an Indonesian community. In Robert B. Edgerton and L.L. Langness, general eds *Explorations in world ethnology*. Palo Alto, California: Mayfield Publishing Co.

Ho, Dah-an, 1978, A comparative study of Paiwan dialects (in Chinese). *BIHP* 49/4:565-681.

1983, The position of Rukai in the Formosan languages (in Chinese). *BIHP* 54/1:121-168.

Hocart, A.M., 1929, *Lau Islands, Fiji*. Bernice P. Bishop Museum Bulletin 62.

Hockett, Charles F., 1948, Implications of Bloomfield's Algonquian studies. *Language* 27:117-131.

1976, The reconstruction of Proto-Central Pacific. *Anthropological Linguistics* 18:187-228.

Hogan, David W., in collaboration with Stephen W. Pattemore, 1988, *Urak Lawoi': basic structures and a dictionary*. *PL*, C-109.

Hollyman, Jim and Andrew Pawley, eds, 1981, *Studies in Pacific languages and cultures in honour of Bruce Biggs*. Auckland: Linguistic Society of New Zealand.

Holmes, Derek, 1989, *The birds of Java and Bali*. Singapore: Oxford University Press.

Hooper, Robin, 1985, Proto Oceanic **qi*. In Pawley and Carrington, eds 1985:141-167.

1991, Denizens of the deep: the semantic history of Proto-Polynesian **palu*. In Pawley, ed. 1991:119-127.

Hornell, James, 1936, *Canoes of Oceania*, vol.1: *The canoes of Polynesia, Fiji and Micronesia*. Honolulu: Bishop Museum Press, Special Publication 27.

Horridge, Adrian, 1978, *The design of planked boats of the Moluccas*. Monograph 38. Greenwich: National Maritime Museum.

1981, *The prahu: traditional sailing boat of Indonesia*. Kuala Lumpur: Oxford University Press.

1986, *Sailing craft of Indonesia*. Singapore: Oxford University Press.

Howard, Richard and Alick Moore, 1980, *A complete checklist of the birds of the world*. Oxford: Oxford University Press.

Hsieh, A-tsai and Tsai-i Yang, 1969, *Nomenclature of plants in Taiwan* (in Chinese). Taipei: National Taiwan University.

Huckett, Joyce and Ramona Lucht, eds, 1976, *Manuga Kahihidi: bird stories*. Ukarumpa, Papua New Guinea: Summer Institute of Linguistics.

Hudson, Alfred B., 1967, *The Barito isolects of Borneo: a classification based on comparative reconstruction and lexicostatistics*. Data Paper No.68, Southeast Asia Program, Department of Asian Studies, Cornell University.

Hutchins, Edwin, 1983, Understanding Micronesian navigation. In D. Gentner and A.L. Stevens, eds *Mental models*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Ibarbia, Z.B., 1969, An Ibanag-English dictionary. PhD dissertation, Texas A & M University.

Ilagi, Gei, 1975, Settlement patterns of Marshall Lagoon. *Oral History* 3/2:54-57.

Irwin, Geoffrey, 1989, Against, across and down the wind: a case for the systematic exploration of the remote Pacific Islands. *JPS* 98/2:167-206.

1992, *The prehistoric exploration and colonisation of the Pacific*. Oakleigh, Vic.: Cambridge University Press.

Ivens, Walter G., 1918, *Dictionary and grammar of the language of Sa'a and Ulawa, Solomon Islands*. Carnegie Institut Publication 253. Washington.

1929, *A dictionary of the language of Sa'a (Mala) and Ulawa, South-East Solomon Islands*. London: Oxford University Press for the University of Melbourne.

1940, *A dictionary of the language of Bugotu, Santa Isabel Island, Solomon Islands*. London: Royal Asiatic Society.

Jackson, Frederick H., 1983, The internal and external relationships of the Trukic languages of Micronesia. PhD dissertation, University of Hawaii.

1984, Reflexes of Proto-Oceanic in the Trukic languages of Micronesia. In Bender, ed.1984:259-280.

1986, On determining the external relationships of the Micronesian languages. In Geraghty, Carrington and Wurm, eds 1986:201-238.

Jackson, Frederick H. and Jeff Marck, 1991, *Carolinian-English dictionary.* Honolulu: University of Hawaii Press.

Jaspan, M.A., 1984, *Materials for a Rejang-Indonesian-English dictionary* (with a fragmentary sketch of the Rejang language by W. Aichele, and a preface and additional annotations by P. Voorhoeve). *PL*, D-58.

Jennings, D.L., 1976, Cassava. In Simmonds, ed. 1976:81-84.

Johannes, R.E., 1981, *Words of the lagoon: fishing and marine lore in the Palau district of Micronesia.* Berkeley: University of California Press.

Johns, Timothy and Isao Kubo, 1988, A survey of traditional methods employed for the detoxification of plant foods. *Journal of Ethnobiology* 8:81-129.

Jones, P.H., n.d., Ko Tainui. Typescript.

Jonker, J.C.G., 1932, *Lettineesche taalstudiën.* Bandung: Nix.

Jordan, David Starr and Barton Evermann, 1973 [1903], *The shore fishes of Hawaii.* Rutland, Vermont/Tokyo, Japan: Charles E. Tuttle.

Jordan, David Starr and Alvin Seale, 1906, *The fishes of Samoa.* Washington: Bureau of Fisheries.

Josephs, Lewis S., 1990, *New Palauan-English dictionary.* Based on the *Palauan-English dictionary* by Fr Edwin G. McManus, S.J. PALI Language Texts: Micronesia. Honolulu: University of Hawaii Press.

Josselin de Jong, J.P.B. de, 1977 [1935], The Malay archipelago as a field of ethnological study. In P.E. de Josselin de Jong, ed. *Structural anthropology in the Netherlands: a reader.* KITLV Translation Series 17. The Hague: Nijhoff.

1987, *Wetan fieldnotes: some eastern Indonesian texts with linguistic notes and a vocabulary.* (Posthumous.) *VKI* 130. Dordrecht, The Netherlands: Foris Publications.

Kähler, Hans, 1955, *Die Sichule-Sprache auf der Insel Simalur an der Westküste von Sumatra. Afrika und Übersee* Beihefte 27. Berlin: Dietrich Reimer.

Kalsakau, G.K., 1990, *History of the three flags: New Hebrides is changeover* [sic] *to the Republic of Vanuatu.* Printed by IPV Printers, Vila.

Kano, Tadao, 1941a, Some cultivated plants of the Formosan aborigines and their relation to the ethnic history of Formosa (in Japanese). *Journal of the Anthropological Society of Tokyo* 56:522-528.

1941b, Cultural affinities of the Batanes Islands and Botel Tobago as viewed from their names for animals and plants (in Japanese). *Journal of the Anthropological Society of Tokyo* 56/8:434-446.

Kats, J. and Soeriadiradja, 1933, *Spraakkunst en taaleigen van het Soendaasch.* Deel IA: *Inleiding.* Batavia: Visser.

Kawi, Djantera, 1985, *Kamus Bakumpai Indonesia.* Jakarta: Pusat Pembinaan dan Pengembangan Bahasa, Departemen Pendidikan dan Kebudayaan.

Keesing, Felix M., 1962, *The ethnohistory of Northern Luzon.* Stanford: Stanford University Press.

Keesing, R.M., 1975, *Kwaio dictionary. PL*, C-35.

Kennedy, Donald G., 1931, *Field notes on the culture of Vaitupu, Ellice Islands.* Memoirs of the Polynesian Society 9. New Plymouth, New Zealand: The Polynesian Society.

Kennedy, Jean, 1990, Relationship between archaeological and linguistic reconstructions of West Melanesian prehistory. Paper presented at the 14th Congress of the Indo-Pacific Prehistory Association, 25 August-2 September 1990, Yogyakarta.

Kern, Hendrik, 1889, Taalkundige gegevens ter bepaling van het stamland der Maleisch-Polynesische volken. *Verslagen en Medeleelingen der Koninklijke Akademie van Wetenschappen*, afdeeling Letterkunde 3e Reeks, d. VI. Amsterdam. Reprinted in his *Verspreide Geschriften* VI (1917):107-120. (Translated into English: see 1976, below.)

1918, Spraakkunst van het Oudjavaansch, (eerste gedeelte). In H. Kern *Verspreide Geschriften* 8:135-323. The Hague: Nijhoff. (First published in 1889.)

1976, Linguistic evidence for the determination of the original homeland of the Malayo-Polynesian peoples. Translation by Curtis D. McFarland and Shigeru Tsuchida of Hendrik Kern, Taalkundige gegevens ter bepaling van het stamland der Maleisch-Polynesische volken. *Oceanic Studies: Linguistics, Anthropology and Sociology* 1:60-81. Tokyo.

Kess, Joseph F. 1969, Motu reflexes of Proto-Austronesian. *Kivung* 2/2:37-56.

Kirch, P.V., 1984, *The evolution of the Polynesian chiefdoms*. Cambridge: Cambridge University Press.

Kirch, P.V., ed., 1986, *Island societies: archaeological approaches to evolution and transformation.* Cambridge: Cambridge University Press.

Kirch, P.V. and T.S. Dye, 1979, Ethno-archaeology and the development of Polynesian fishing strategies. *JPS* 88:53-76.

Kirchhoff, Paul, 1932, Verwandtschaftsbezeichnungen und Verwandtenheirat. *Zeitschrift für Ethnologie* 64:41-72.

Koentjaraningrat, 1972, Manggarai. In Lebar, ed. 1972:81-83.

Korigodski, R.N., O.N. Kondrashkin and B.I. Zinoviev, 1961, *Indonezijsko-russkij slovar I*. Moscow: Gos. izd. inostr. i nats. slovarei.

Koskinen, A.A., 1960, *Ariki the first born: an analysis of a Polynesian chieftain title.* FF Communications 181. Helsinki: Suomalainen Tiedeakatemia.

Kreemer, J., 1931, *Atjèhsch handwoordenboek (Atjèhsch-Nederlandsch).* Leiden: Brill.

Kroeber, Alfred L., 1909, Classificatory systems of relationship. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 39:77-84.

1919, Kinship in the Philippines. *Anthropological Papers of the American Museum of Natural History* 19:69-84.

Kuschel, G., ed., 1975, *Biogeography and ecology in New Zealand.* The Hague: Dr W. Junk.

Labrousse, Pierre, 1985, *Dictionnaire général indonesien-français.* Paris: Association Archipel.

Lafont, Pierre, 1963, *Prières jarai.* Collections de textes et documents sur l'Indochine 8. Paris: École Française d'Extrême Orient.

1968, *Lexique français-jarai-vietnamien.* Paris: Publications de l'École Française d'Extrême Orient, 63.

Lakoff, George, 1987, *Women, fire and dangerous things: what categories reveal about the mind.* Chicago: University of Chicago Press.

Lamberg-Karlovsky, C.C., 1988, Indo-Europeans: a Near Eastern perspective. *Quarterly Review of Archaeology* 9/1:1, 8-10.

Langdon, Robert, 1989, The significance of cultivated plant names in the settlement of Eastern Polynesia. In Harlow and Hooper, eds 1989:305-333.

Lanyon-Orgill, Peter A., 1960, A *dictionary of the Raluana language (New Britain, S.W.Pacific).* Victoria, B.C.: The author.

Lavondès, Henri, 1977, Les noms de poissons marquisiens. *Journal de la Société des Océanistes* 33:79-112.

Leach, Edmund R., 1961, *Rethinking anthropology.* London School of Economics Monographs in Anthropology 22. London: Athlone Press.

Leach, Foss and Graeme Ward, 1981, *Archaeology on Kapingamarangi Atoll.* Studies in Prehistoric Anthropology 16. Dunedin: University of Otago.

Lebar, Frank M., 1972a, Redjang. In Lebar, ed. 1972:31-34.

1972b, Endenese. In Lebar, ed. 1972:86-88.

Lebar, Frank M., ed. and compiler, 1972, *Ethnic groups of insular Southeast Asia*, vol.1: *Indonesia, Andaman Islands and Madagascar*. New Haven: Human Relations Area Files Press.

1975, *Ethnic groups of insular Southeast Asia*, vol.2: *Philippines and Formosa*. New Haven: Human Relations Area Files Press.

Lebot, Vincent, 1984, Aires de diversification des cultivars de *Piper methysticum* kava. *Naika: Journal of the Vanuatu Natural Science Society* 14 (June), 4-9.

1989, L'histoire du kava commence par sa découverte. *Journal de la Société des Océanistes* 88-89/1-2:89-114.

Lebot, Vincent and Pierre Cabalion, 1986, *Les kavas de Vanuatu: cultivars de* Piper methysticum *Forst.* Paris: Editions de l'ORSTOM, Institut Français de Recherche Scientifique pour le Développement en Coopération, Collection *Travaux et Documents* N° 205.

Lee, Kee-dong, 1975, *Kusaiean reference grammar*. Honolulu: University Press of Hawaii.

1976, *Kusaiean-English dictionary*. PALI Language Texts: Micronesia. Honolulu: University Press of Hawaii.

Lee, Kee-dong and Judith Wang, 1984, Kosraean reflexes of Proto-Oceanic phonemes. In Bender, ed. 1984:403-442.

Lehmann, W.P., 1987, Linguistic and archeological data for handbooks of proto-languages. In Skomal and Polomé, eds, 1987:72-87.

Lemaître, Y., 1973, *Lexique du tahitien contemporain*. Paris: Office de la Recherche Scientifique et Technique Outre-Mer.

Levison, M., R.G. Ward and J.W. Webb, 1973, *The settlement of Polynesia: a computer simulation*. Minneapolis: University of Minnesota Press.

Lévi-Strauss, Claude, 1969, *The elementary structures of kinship*. Trans. James Harle Bell and John Richard von Sturmer; ed. Rodney Needham. Boston: Beacon Press. (First published in 1949.)

Levy, Richard S., 1979, The phonological history of the Bugotu-Nggelic languages and its implications for Eastern Oceanic. *OL* 18/1:1-31.

1980, Languages of the Southeast Solomon Islands and the reconstruction of Proto-Eastern-Oceanic. In Paz B. Naylor, ed. *Austronesian studies: Papers from the Second Eastern Conference on Austronesian Languages*, 213-225. Ann Arbor: University of Michigan Center for South and Southeast Asian Studies.

Lewis, A.D., B.R. Smith and C.P. Ellway, 1983, *A guide to the common tuna baitfishes of the South Pacific Commission area*. SPC Handbook No.23. Nouméa, New Caledonia: South Pacific Commission.

Lewis, David, 1972, *We, the navigators*. Canberra: ANU Press.

Lewis, Douglas E., 1988, *People of the source: the social and ceremonial order of Tana Wai Brama on Flores*. *VKI* 135. Dordrecht, The Netherlands/Cinnaminson, USA: Foris Publications.

Lewis, M. Blanche, 1960, *Moken texts and word-list: a provisional interpretation*. Federation Museums Journal, vol.4 (n.s.). Kuala Lumpur: Museums Department.

Li, Hui-lin et al., 1975, *Flora of Taiwan*. 6 vols. Taipei: Epoch Publishing Co.

Li, Paul Jen-kuei, 1977, The internal relationships of Rukai. *BIHP* 48/1:1-92.

1981, Reconstruction of proto-Atayalic phonology. *BIHP* 52/2:235-301.

1982, Kavalan phonology: synchronic and diachronic. In Carle et al., eds 1982:479-495.

1985, The position of Atayal in the Austronesian family. In Pawley and Carrington, eds 1985:257-280.

1988, A comparative study of Bunun dialects. *BIHP* 59/2:479-508.

Li, Paul Jen-kuei, Dah-an Ho, Cheng-hwa Tsang and Ying-Kuei Huang, eds, forthcoming, *Austronesian Studies Relating to Taiwan*. Symposium series of the Institute of History and Philology, Academia Sinica, No.4. Taipei: Academia Sinica.

Lichtenberk, Frantisek, 1988, The Cristobal-Malaitan subgroup of Southeast Solomonic. *OL* 27/1:24-62.

Lieber, Michael D. and Kalio H. Dikepa, 1974, *Kapingamarangi lexicon.* PALI Language Texts: Polynesia. Honolulu: University Press of Hawaii.

Lincoln, Peter C., 1977, Gitua-English vocabulary. MS.

n.d.a, Fieldnotes.

n.d.b, Solomon Island fish names. MS.

Lindstrom, Lamont, 1986, *Kwamera dictionary: Nikukua sai nagkianien nininife. PL*, C-95.

Lindt, J.W., 1887, *Picturesque New Guinea.* London: Longmans, Green.

Lister-Turner, R. and J.B. Clark, c. 1954, *A dictionary of the Motu language of Papua* (2nd edn, edited by Percy Chatterton). Sydney: Government Printer.

Lithgow, Daphne and David Lithgow, 1974, *Dictionaries of Papua New Guinea*, vol.1: *Muyuw language.* Ukarumpa, Papua New Guinea: Summer Institute of Linguistics.

Lobel, P.S., 1978, Gilbertese and Ellice Islander names for fishes and other organisms. *Micronesica* 14:177-197.

Lowie, Robert H., 1917, *Culture and ethnology.* New York: Boni and Liveright.

1928, A note on relationship terminologies. *American Anthropologist* 30:265-266.

Loy, T., M. Spriggs and S. Wickler, 1992, Direct evidence for human use of plants 28,000 years ago: starch residues on stone artifacts from the Northern Solomon Islands. *Antiquity* 66/253:898-912.

Ludvigson, Tomas, 1989, A Kiai wordlist. *WPAALMS* No.81.

Lynch, John, 1974, Some wordlists from the Southern New Hebrides. Mimeographed, University of Papua New Guinea.

1977, *Lenakel dictionary. PL*, C-55.

1978a, Proto-Central Papuan: a reassessment. Mimeo, University of Papua New Guinea.

1978b, Proto-Oceanic *l and *y in Proto-Central Papuan or why did the Koita put yaras on their yagatois? Paper presented to the Twelfth Congress of the Linguistic Society of Papua New Guinea.

1978c, Proto-South Hebridean and Proto-Oceanic. In Wurm and Carrington, eds 1978:717-779.

1980, Proto-Central Papuan phonology. Mimeo, University of Papua New Guinea.

1982a, Anejom grammar sketch. In Lynch, ed. 1982:93-154.

1982b, Anejom lexical file. Computer printout.

1982c, The linguistic prehistory of Southern Vanuatu. Seminar paper presented in the Department of Linguistics, Research School of Pacific Studies, Australian National University, Canberra.

1982d, Some notes on Proto-Tanna morphology. Mimeographed, Australian National University.

1982e, South-west Tanna grammar outline and vocabulary. In Lynch, ed. 1982:1-91.

1982f, The Ura language, Erromango. In Carle et al., eds 1982:215-236.

1983a, Preliminary remarks on Proto-Erromangan. In Lynch, ed. 1983:193-220.

1983b, Proto Central Papuan phonology. Typescript. University of Papua New Guinea.

1983c, Ura grammar sketch and vocabulary. In Lynch, ed. 1983:149-183.

1991, Pigs and dogs in island Melanesia. In Pawley, ed. 1991:421-432.

1992, Verb-initial vowel accretion in Southern Vanuatu languages. In Tom Dutton, Malcolm Ross and Darrell Tryon, eds *The language game: papers in memory of Donald C. Laycock*, 235-240. *PL*, C-110.

Lynch, John, ed., 1982, *Papers in linguistics of Melanesia* No.4. *PL*, A-64.

1983, *Studies in the languages of Erromango. PL*, C-79.

forthcoming, Papers from the First International Conference on Oceanic Linguistics, Vila, 4-9 July 1993. *PL*, Series C.

Lynch, John and D.T. Tryon, 1985, Central-Eastern Oceanic: a subgrouping hypothesis. In Pawley and Carrington, eds 1985:31-52.

McEwen, J.M., 1970, *Niue dictionary.* Wellington: Department of Maori and Island Affairs.

McFarland, Curtis D., 1977, *Northern Philippine linguistic geography.* Study of Languages and Cultures of Asia and Africa Monograph Series No.9. Tokyo.

McGinn, Richard, 1982, *Outline of Rejang syntax. NUSA* 14. Jakarta: Badan Penyelenggara Seri Nusa, Universitas Atma Jaya.

McGinn, Richard, ed., 1988, *Studies in Austronesian linguistics.* Athens, Ohio: Center for Southeast Asia Studies, Ohio University.

McKaughan, Howard P. and Batua A. Macaraya, 1967, *A Maranao dictionary.* Honolulu: University of Hawaii Press.

MacKinnon, John, 1990, *Field guide to the birds of Java and Bali.* Yogyakarta: Gadjah Mada University Press.

Mager, John F., 1952, *Gedaged-English dictionary.* Columbus, Ohio: Board of Foreign Missions of the American Lutheran Church.

Majnep, Ian Saem and Ralph Bulmer, 1977, *Birds of my Kalam country.* Auckland: Auckland University Press and Oxford University Press.

Malinowski, Bronislaw, 1922, *Argonauts of the Western Pacific.* London: Routledge & Kegan Paul.

Malkiel, Yakov, 1981, Drift, slope and slant. *Language* 57/3:535-570.

Mallory, J.P., 1989, *In search of the Indo-Europeans: language, archaeology and myth.* London: Thames & Hudson.

Manik, Tindi Radja, 1977, *Kamus Bahasa Dairi Pakpak–Indonesia.* Jakarta: Pusat Pembinaan dan Pengembangan Bahasa (National Language Center).

Marck, Jeff, 1975, The origins and dispersal of the Proto-Nuclear Micronesians. MA thesis, University of Iowa.

1977, A preliminary manual of Micronesian sound correspondences. Presented at the Symposium on Austronesian Linguistics of the Summer Meeting of the Linguistic Society of America, Honolulu, 18-20 August 1977.

1991, Nuclear Micronesian sound correspondences. Presented at the Sixth International Conference on Austronesian Linguistics, Honolulu, 20-24 May 1991.

Marshall, Mac, 1975, The natural history of Namoluk atoll, eastern Caroline Islands. *Atoll Research Bulletin* 189:1-53. Washington: Smithsonian Institution.

1984, Structural patterns of sibling classification in island Oceania: implications for culture history. *Current Anthropology* 25/5:597-637 (with comments and reply).

Matthews, P., 1990, The origins, dispersal and domestication of taro. PhD thesis, Australian National University, Canberra.

May, R.J., 1984, *Kaikai aniani.* Bathurst: Robert Brown & Associates.

Mayer, J.F., 1976, *Samoan language: a manual of the study and teaching of the Samoan language as taught by Peace Corps: W. Samoa.* Apia: United States Peace Corps.

Mayr, Ernst, 1945, *Birds of the Southwest Pacific.* New York: Macmillan.

Mead, Paul, 1978, *Report on the South Pacific Commission Deep Sea Fisheries Development Project in American Samoa.* Nouméa, New Caledonia: South Pacific Commission.

1979, *Report on the South Pacific Commission Deep Sea Fisheries Development Project in the Kingdom of Tonga.* Nouméa, New Caledonia: South Pacific Commission.

1980a, *Report on the second visit of the South Pacific Commission Deep Sea Fisheries Development Project to Niue.* Nouméa, New Caledonia: South Pacific Commission.

1980b, *Report on the second visit of the South Pacific Commission Deep Sea Fisheries Development Project to the Kingdom of Tonga.* Nouméa, New Caledonia: South Pacific Commission.

Menn, L., 1989, Some people who don't talk right: universal and particular in child language, aphasia, and language obsolescence. In N.C. Dorian, ed. *Investigating obsolescence: studies in language contraction and death*, 335-345. Cambridge: Cambridge University Press.

Merrill, Elmer D., 1903, *A dictionary of the plant names of the Philippine islands*. Manila: Bureau of Public Printing.

1923-26, *An enumeration of Philippine flowering plants*. 4 vols. The Government of the Philippine Islands, Department of Agriculture and Natural Resources, Bureau of Science, Publication No.18. Manila: Bureau of Printing. (Reprinted 1968 by Asher, Amsterdam.)

1946, *Plant life of the Pacific world*. New York: Macmillan.

1954, *The botany of Cook's voyages*. Waltham, Mass.: Chronica Botanica Co.

Meyer, Frans, 1937, Sikkanees-Nederlands woordenboek. MS.

Meyer, Otto, 1927, Wörterbuch der qunan-tuna Sprache. Typescript.

Mihalic, Francis, 1971, *The Jacaranda dictionary and grammar of Melanesian Pidgin*. Brisbane: Jacaranda Press.

Milke, Wilhelm, 1938, Die Benennungen der Geschwister in den austronesischen Sprachen Ozeaniens. *Zeitschrift für Ethnologie* 70:51-66.

1958, Ozeanische Verwandtschaftsnamen. *Zeitschrift für Ethnologie* 83:226-229.

1961, Beiträge zur ozeanischen Linguistik. *Zeitschrift für Ethnologie* 86:162-182.

1965, Comparative notes on the Austronesian languages of New Guinea. *Lingua* 14:330-348.

1968, Proto-Oceanic addenda. *OL* 7/2:147-171.

Mills, Roger F., 1975, Proto-South-Sulawesi and Proto-Austronesian phonology. 2 vols. PhD dissertation, University of Michigan, Ann Arbor (University Microfilms International 1978).

1981, Additional addenda. In R.A. Blust, ed. *Historical linguistics in Indonesia Part I*, 59-82. *NUSA* 10.

Milner, G.B., 1966, *Samoan dictionary*. London: Oxford University Press.

Money, Lucy H., n.d., Babatana-English wordlist. MS.

Money, P., 1907, An Ubir and English dictionary. Typescript.

Morgan, Lewis H., 1870, Systems of consanguinity and affinity of the human family. *Smithsonian Contributions to Knowledge* 17:1-590.

1877, *Ancient society*. Chicago: Charles H. Kerr.

Morris, Cliff, 1984, *Tetun-English dictionary*. *PL*, C-83.

Motus, Cecile, 1971, *Hiligaynon dictionary*. Honolulu: University of Hawaii Press.

Moussay, Gerard, 1971, *Dictionnaire cam-vietnamien-français*. Phanrang: Centre Culturel Cam (Trung-tam Van-hoa Cham).

1981, *La langue minangkabau*. Cahier d'Archipel 14. Paris: Association Archipel.

Murdock, George Peter, 1949, *Social structure*. New York: Macmillan.

1964, Genetic classification of the Austronesian languages: a key to Oceanic culture history. *Ethnology* 3/2:117-126.

1967, *Ethnographic atlas*. Pittsburgh: University of Pittsburgh Press.

1968, Patterns of sibling terminology. *Ethnology* 7:1-24.

Needham, Rodney, 1962a, *Structure and sentiment: a test case in social anthropology*. Chicago: University of Chicago Press.

1962b, Notes on comparative method and prescriptive alliance. *BKI* 118:160-182.

1967, Terminology and alliance II: Mapuche, conclusions. *Sociologus* 17:39-54.

1968, Endeh: terminology, alliance and analysis. *BKI* 124:305-335.

1970, Endeh, II: test and confirmation. *BKI* 126:246-258.

1974, *Remarks and inventions: skeptical essays about kinship*. London: Tavistock.

1978, Classification and alliance among the Karo: an appreciation. *BKI* 134:116-148.

1980, Principles and variations in the structure of Sumbanese society. In Fox, ed. 1980:21-47.

1984, The transformation of prescriptive systems in eastern Indonesia. In P.E. de Josselin de Jong, ed. *Unity in diversity: Indonesia as a field of ethnological study*, 221-233. *VKI* 103. Dordrecht, The Netherlands: Foris Publications.

Needham, Rodney, ed., 1973, *Right and left: essays on dual symbolic classification.* Chicago: University of Chicago Press.

Nerlove, Sara and A. Kimball Romney, 1967, Sibling terminology and cross-sex behavior. *American Anthropologist* 69:179-187.

Neumann, J.H., 1951, *Karo-Bataks-Nederlands woordenboek.* Jakarta: Lembaga Kebudayaan Indonesia/Medan, Sumatra: Varekamp.

Nooy-Palm, Hetty, 1979, *The Sa'dan Toraja. VKI* 87.

Nordhoff, Charles, 1930, *Notes on the off-shore fishing of the Society Islands.* Wellington: The Polynesian Society.

Nothofer, Bernd, 1975, *The reconstruction of Proto-Malayo-Javanic. VKI* 73.

1985, The subgrouping of the languages of the Javo-Sumatra hesion: a reconsideration. *BKI* 141:288-302.

1991, The languages of Brunei Darussalam. In H. Steinhauer, ed. *Papers in Austronesian linguistics* No.1, 151-176. *PL*, A-81.

Ogawa, Naoyoshi and Erin Asai, 1935, *The myths and traditions of the Formosan native tribes.* Taihoku, Taipei: Institute of Linguistics, Taihoku Imperial University.

Oliver, Douglas L., 1989, *Native cultures of the Pacific Islands.* Honolulu: University of Hawaii Press.

Olson, Cliff, 1989, Gumawana dictionary. Computer file.

Onvlee, L., 1984, *Kamberaas (Oost-Soembaas)-Nederlands woordenboek.* KITLV. Dordrecht, The Netherlands: Foris Publications.

Onwueme, I.C. 1978, *The tropical tuber crops.* New York: Wiley.

Oram, Nigel, 1982, Pots for sago: the *hiri* trading network. In Dutton, ed. 1982:1-34.

Osmond, Meredith, forthcoming, Proto Oceanic terms for fishing and hunting implements. In Lynch, ed. *PL*, Series C.

Osra M. Akbar, Syech Ahmaddin and Hasanuddin Mardjo, 1985, *Kamus Alas-Indonesia.* Jakarta: Pusat Pembinaan dan Pengembangan Bahasa, Departemen Pendidikan dan Kebudayaan.

Ozanne-Rivierre, Françoise, 1992, *The Proto-Oceanic consonantal system and the languages of New Caledonia. OL* 31/2:191-207.

Paijmans, K., 1976, Vegetation. In Paijmans, ed. 1976:23-105.

Paijmans, K., ed., 1976, *New Guinea vegetation.* Canberra: ANU Press.

Palleson, A. Kemp, 1985, *Culture contact and language convergence.* Linguistic Society of the Philippines Monograph 24. Manila: Summer Institute of Linguistics.

Panganiban, José Villa, 1980, *Diksiyunaryong Pilipino-Ingles* (2nd edn). Quezon City: Bede's Publishing House.

Parham, J.W., 1972, *Plants of the Fiji islands.* Suva: Government Printer.

Parker, G.J., 1970, *Southeast Ambrym dictionary. PL*, C-17.

Paton, W.F., 1973, *Ambrym (Lonwolwol) dictionary. PL*, C-21.

Paulin, C., A. Stewart, C. Roberts and P. McMillan, 1989, *New Zealand fish: a complete guide.* Wellington: National Museum of New Zealand.

Pawley, Andrew K., 1972, On the internal relationships of Eastern Oceanic languages. In R.C. Green and M. Kelly, eds *Studies in Oceanic culture history* 3, 1-142. Pacific Anthropological Records 13. Honolulu: Bernice P. Bishop Museum.

1973, Some problems in Proto-Oceanic grammar. *OL* 12:103-188.

1975a, PPN reconstructions supplied to class in Linguistics 397. MS, University of Hawaii, Manoa, Honolulu.

1975b, The relationships of the Austronesian languages of Central Papua. In Dutton, ed. 1975:3-106.

1978, The New Guinea hypothesis. *WPLUH* 10/1:9-48.

1980, Comment on R. Blust: Early Austronesian social organization: the evidence of language. *Current Anthropology* 21:236-237.

1982, Rubbish-man commoner, big man chief? Linguistic evidence for hereditary chieftainship in Proto-Oceanic society. In Jukka Siikala, ed. *Oceanic studies: essays in honour of Aarne A. Koskinen*, 33-52. Transactions of the Finnish Anthropological Society No.11. Helsinki: Finnish Anthropological Society.

1991, Reconstructing complex lexemes: the case of Proto Oceanic compounds with **mata* and **tau*. Paper presented at the Sixth International conference on Austronesian Linguistics, Honolulu.

forthcoming, Proto Oceanic terms for reef and shoreline invertebrates. In Lynch, ed. *PL*, Series C.

Pawley, Andrew, ed., 1991, *Man and a half: essays in Pacific anthropology and ethnobiology in honour of Ralph Bulmer*. Auckland: The Polynesian Society.

Pawley, Andrew and Lois Carrington, eds, 1985, *Austronesian linguistics at the 15th Pacific Science Congress. PL*, C-88.

Pawley, Andrew and Kaye Green, 1971, Lexical evidence for the Proto-Polynesian homeland. *Te Reo* 14:1-35.

Pawley, Andrew and Roger C. Green, 1973, Dating the dispersal of the Oceanic languages. *OL* 12:1-67.

1984, The proto-Oceanic language community. *JPH* 19/3:123-146.

Pawley, Andrew and Timoci Sayaba, forthcoming, *Words of Waya: an encyclopaedic dictionary of the Wayan dialect of the Western Fijian language*, vol. 1: *Wayan-English. PL*, Series C.

Penninga, P. and H. Hendriks, 1937, *Practisch Madoereesch-Hollandsch woordenboek*. Semarang, Surabaya/The Hague: Van Dorp. (1st edn 1913.)

Pigeaud, T., 1938, *Javaans-Nederlands handwoordenboek*. Groningen: J.B. Wolters.

Pond, Wendy, n.d., Tongan fish names. Typescript.

Powell, J.M.,1976, Ethnobotany. In Paijmans, ed. 1976:106-183.

Pratt, George, 1878, *Grammar and dictionary of the Samoan language*. London: Trübner.

Pratt, H. Douglas, Phillip L. Bruner and Delwyn G. Berrett, 1987, *A field guide to the birds of Hawaii and the tropical Pacific*. Princeton: Princeton University Press.

Proctor, John, 1979, A preliminary look at the language of Long Terawan. *The Sarawak Museum Journal* 27 (48 n.s.):103-170.

Pukui, Mary K. and Samuel H. Elbert, 1957, *Hawaiian-English dictionary*. Honolulu: University of Hawaii Press.

1971, *Hawaiian dictionary*. Honolulu: University of Hawaii Press. (Revised and enlarged edn, 1986.)

Pulu, Tupou L., 1981, *Ko e fāgota faka-Tonga / Tongan fishing*. Anchorage, Alaska: National Bilingual Materials Development Center.

Quisumbing, Eduardo, 1951, *Medicinal plants of the Philippines*. Manila, Republic of the Philippines: Department of Agriculture and Technical Resources, Technical Bulletin No.16.

Rageau, One, 1976, The Rigolorupu of Marshall Lagoon. *Oral History* 5/7:52-55.

Rajemisa-Raolison, Régis, 1985, *Rakibolana malagasy*. Fianarantsoa: Librairie Ambozontany.

Ranby, P., 1980, *A Nanumea lexicon. PL*, C-65.

Rand, Austin L. and E. Thomas Gilliard, 1967, *Handbook of New Guinea birds*. London: Weidenfeld & Nicolson.

Randall, John E. and Alfredo Cea Egaña, 1984, Native names of Easter Island fishes, with comments on the origin of the Rapanui people. *Occasional Papers of Bernice P. Bishop Museum* 25:1-16.

Randall, John E. and Yosihiko H. Sinoto, 1978, Rapan fish names. *Occasional Papers of Bernice P. Bishop Museum* 24:291-306.

Rehg, Kenneth L. and Byron W. Bender, 1990, Lexical transfer from Marshallese to Mokilese: a case of intra-Micronesian borrowing. *OL* 29/1:1-26.

Rehg, Kenneth L. and Damian G. Sohl, 1979, *Ponapean-English dictionary*. PALI Language Texts: Micronesia. Honolulu: University Press of Hawaii.

Reid, Lawrence A., 1971, *Philippine minor languages: word lists and phonologies. OL* Special Publication No.8. Honolulu: University of Hawaii Press.

1972, Wards and working groups in Guinaang Bontoc, Luzon. *Anthropos* 67:530-563.

1973, Kankanay and the problem of **R* and **l* reflexes. In A.B. Gonzales, ed. *Essays in honor of Cecilio Lopez on his 75th birthday*, 51-63. Manila: Linguistic Society of the Philippines.

1976, *Bontok-English dictionary. PL*, C-36.

1982, The demise of Proto-Philippines. In Halim, Carrington and Wurm, eds 1982b:201-216.

1994, Unravelling the linguistic histories of Philippine Negritos. In T.E. Dutton and D.T. Tryon, eds *Language contact and change in the Austronesian world*, 443-475. Berlin: Mouton de Gruyter.

Renfrew, C., 1987, *Archaeology and language: the puzzle of Indo-European origins*. London: Jonathan Cape.

Rensch, Karl H., 1983, Fish names of Wallis Island (Uvea). *Pacific Studies* 7/1:59-90.

1984, *Tikisionalio fakauvea-fakafalani: dictionnaire wallisien-français. PL*, C-86.

1986, *Tikisionalio fakafutuna-fakafalani: dictionnaire futunien-français. PL*, C-90.

1988, *Fish names of Eastern Polynesia. PL*, C-106.

Revel, Nicole, ed., 1988, *Le riz en Asie du Sud-est: atlas du vocabulaire de la plante*. 3 vols. Paris: École des Hautes Études en Sciences Sociales.

Richards, Anthony J.N., 1981, *An Iban-English dictionary*. Oxford: Clarendon Press.

Richardson, J., 1885, *A new Malagasy-English dictionary*. Antananarivo: London Missionary Society.

Rosaldo, Renato and Michelle Rosaldo, 1975, Ilongot. In Lebar, ed. 1975:103-106.

Ross, Malcolm D., 1979, Proto-Central Papua. Mimeo, Goroka campus of the University of Papua New Guinea.

1983, Proto Central Papuan morphosyntax. Computer printout, Australian National University, Canberra.

1985, Austronesian reconstructions. Mimeo.

1988, *Proto Oceanic and the Austronesian languages of western Melanesia. PL*, C-98.

1989a, How conservative are sedentary languages? Evidence from western Melanesia. MS.

1989b Proto-Oceanic consonant grade and Milke's **nj*. In Harlow and Hooper, eds 1989:433-495.

1992, The position of Gumawana among the languages of the Papuan Tip cluster. *Language and Linguistics in Melanesia* 23:139-165.

n.d., Fieldnotes.

forthcoming, **Kanaŋ ma wasa*: reconstructing food plant terms and associated terminologies in Proto Oceanic. In Lynch, ed. *PL*, Series C.

Rousseau, Jerome, 1974, A vocabulary of Baluy Kayan, *Sarawak Museum Journal* 22 (43 n.s.):93-152.

Ruddle, Kenneth, Dennis Johnson, Patricia K. Townsend and John D. Rees, 1978, *Palm sago: a tropical starch from marginal lands*. Canberra: ANU Press.

Ruhlen, Merritt, 1987, *A guide to the world's languages*, vol.1: *Classification*. Stanford: Stanford University Press.

Ryan, Peter, ed., 1972, *Encylopaedia of Papua New Guinea.* Melbourne: Melbourne University Press in association with the University of Papua New Guinea.

Sabatier, E., 1971, *Gilbertese-English dictionary.* (Translated from the French by Sr Oliva.) Sydney: South Pacific Commission Publications Bureau.

Sahlins, Marshall, 1985, *Islands of history.* Chicago: University of Chicago Press.

Salisbury, Kevin, 1990, The fishes of Pukapuka / Te Wii Ika o te Ulu o te Watu / A preliminary report on Pukapuka fish names. Computer printout, University of Auckland.

n.d., Pukapukan fish names. MS.

Salmond, Anne, 1976, *A Luangiua vocabulary.* Working Papers, Department of Anthropology, University of Auckland.

Sapir, Edward, 1921, *Language.* New York: Harcourt, Brace & World.

Sasaki, Syun'iti, 1928, *List of plants of Formosa.* Taihoku: The Natural History Society of Formosa.

Sather, Clifford, 1993, Posts, hearths and thresholds: the Iban longhouse as a ritual structure. In James J. Fox, ed. *Inside Austronesian houses: perspectives on domestic designs for living*, 64-115. Canberra: Department of Anthropology, Australian National University.

Saussure, Ferdinand de, 1966, *Course in general linguistics.* Ed. Charles Bally and Albert Sechehaye in collaboration with Albert Riedlinger; trans. Wade Baskin. New York: McGraw-Hill. (First published in 1915.)

Savage, Stephen, 1962, *A dictionary of the Maori language of Rarotonga.* Wellington: Department of Island Territories.

Schachter, Paul and Fé T. Otanes, 1972, *Tagalog reference grammar.* Berkeley: University of California Press.

Schlegel, Stuart A., 1971, *Tiruray-English lexicon.* University of California Publications in Linguistics No.67. Berkeley: University of California Press.

Schulte-Nordholt, H.G., 1971, *The political system of the Atoni of Timor.* Trans. M.J.L. van Yperen. *VKI* 60. (Originally thesis, Amsterdam, 1966.)

Scott, William H., 1958, *A vocabulary of the Sagada Igorot dialect.* Philippine Studies Program, Transcript No.6. Chicago: Department of Anthropology, University of Chicago.

1982, Boat-building and seamanship in classic Philippine society. *Philippine Studies* 30:335-376.

Sebeok, Thomas A., ed., 1971, *Current trends in linguistics*, vol.8: *Linguistics in Oceania.* The Hague: Mouton.

Senft, G., 1986, *Kilivila: the language of the Trobriand islanders.* Berlin/New York: Mouton de Gruyter.

Severance, Craig J., 1986, Traditional fishing strategies on Losap Atoll: ethnographic reconstruction and the problems of innovation and adaptation. In Anderson, ed. 1986:35-43.

Sharp, Andrew, 1956, *Ancient voyagers in the Pacific.* Harmondsworth, Middlesex: Penguin Books.

Short, Lillian M.T., 1935, The phonetics and grammar of the Hula language, with vocabulary and translation and notes of other dialects of the Hood Bay district. MA thesis, University of Adelaide.

Shutler, Richard Jr. and Jeffrey C. Marck, 1975, On the dispersal of the Austronesian horticulturalists. *Archaeology and Physical Anthropology in Oceania* 10/2:81-113.

Shutler, Richard Jr. and Mary Elizabeth Shutler, 1975, *Oceanic prehistory.* Menlo Park, California: Cummings Publishing Company.

Sierevelt, A.M., 1920, *Woordenlijst van het omgangstaal in West Seran.* Weltevreden: Encyclopaedisch Bureau.

Siers, James, 1977, *Taratai: a Pacific adventure.* Wellington: Millwood.

Simmonds, N.W., ed., 1976, *Evolution of crop plants.* London: Longmans.

Simona, Ropati et al., 1986, *Tokelau dictionary.* Apia, Western Samoa: Office of Tokelau Affairs.

Singarimbun, Masri, 1975, *Kinship, descent and alliance among the Karo Batak*. Berkeley: University of California Press.

Sirk, Ü. Kh., 1979, *La langue bugis*. Cahier d'Archipel 10. Paris: Association Archipel.

Skomal, S.N. and E.C. Polomé, eds, 1987, *Proto-Indo-European: the archaeology of a linguistic problem – studies in honor of Marija Gimbutas*. Washington D.C.: Institute for the Study of Man.

Smythe, W.E., n.d., Admiralty Islands linguistics. Typescript (in eight parts), Australian National University.

Sneddon, J.N., 1978, *Proto-Minahasan: phonology, morphology and wordlist. PL*, B-54.

1984, *Proto-Sangiric and the Sangiric languages. PL*, B-91.

Sohn, Ho-min and Anthony F. Tawerilmang, 1976, *Woleaian-English dictionary*. PALI Language Texts: Micronesia. Honolulu: University Press of Hawaii.

Soravia, Giulio, 1984, *A sketch of the Gayo language*. Gruppo Linguistico Catanese Studi 1. Catania: The University.

Southwell, C. Hudson, 1990, *Kayan-English dictionary*. Kuching: Sarawak Literary Society.

Sperlich, Wolfgang, 1988, Namakir wordlist. MS.

Spier, Leslie, 1925, The distribution of kinship systems in North America. *University of Washington Publications in Anthropology* 1/2:69-88. Maps 1-9. Seattle.

Spoehr, A., 1968, Problems in Oceanic archaeology. In Yawata and Sinoto, eds, 1968:173-176.

Spriggs, M.J.T., 1984, The Lapita cultural complex: origins, distribution, contemporaries and successors. *JPH* 19/3-4:202-223.

1989, The dating of the Island Southeast Asian Neolithic: an attempt at chronometric hygiene and linguistic correlation. *Antiquity* 63:587-613.

1990, Dating of the Lapita culture: another view. In M. Spriggs, ed. *Lapita design, form and composition*, 6-27. Canberra: Department of Prehistory, Australian National University.

Steadman, David W., 1989, Extinction of birds in Eastern Polynesia: a review of the record, and comparisons with other Pacific island groups. *Journal of Archaeological Science* 16:177-205.

Steenis, C.G.G.J. van, ed., 1963, *Pacific plant areas*, vol.1. Manila: National Institute of Science and Technology.

Steller, K.G.F. and W.E. Aebersold, 1959, *Sangirees-Nederlands woordenboek met Nederlands-Sangirees register*. The Hague: Nijhoff.

Stibbe, D.G., 1919, *Encyclopaedie van Nederlandsch-Indië*, vol.3: *N-Soema*. The Hague: Nijhoff.

Stimson, J.F., with the collaboration of Donald S. Marshall, 1964, *A dictionary of some Tuamotuan dialects of the Polynesian language*. The Hague: Nijhoff.

Streicher, J.F., 1982, *Jabêm-English dictionary*. Reproduction of the Jabêm-Deutsch Wörterbuch compiled by Rev. H. Zahn, 1917, Logaweng-Neuguinea. *PL*, C-68.

Stresemann, Erwin, 1918, *Die Paulohisprache*. The Hague: Nijhoff.

Summer Institute of Linguistics, 1980, *A topical vocabulary in English, Pilipino, Ilocano and Southern Kalinga [Tinglayan]*. Manila.

1981, *A classified vocabulary, English, Pilipino and Limos Kalinga*. Manila.

1985, *Deksonaryu: Balangao, Ilocano, Pilipino, English*. Manila.

Sundermann, D.H., 1913, *Niassische Sprachlehre*. The Hague: Nijhoff.

Sutton, D.G., 1990, Organisation and ontology: origins of the Northern Maori chiefdom, New Zealand. *Man* (n.s.) 25/4:667-692.

Swadling, Pamela, 1980a, Decorative features and sources of selected potsherds from archaeological sites in the Gulf and Central Provinces. *Oral History* 8/8:101-125.

1980b, The settlement history of the Motu and Koita speaking people of the Central Province, Papua New Guinea. In Denoon and Lacey, eds 1980:240-251.

Symonds, S.P., [1989], The phonology, morphology and syntax of 'Ala'ala. BA (Honours) thesis, University of Sydney.

Taumaia, Pale and Mark Gentle, 1982, *Report on the Deep Sea Fisheries Development Project in Funafuti, Tuvalu.* Nouméa, New Caledonia: South Pacific Commission.

1983, *Report on the Deep Sea Fisheries Development Project's visit to the Republic of Kiribati.* Nouméa, New Caledonia: South Pacific Commission.

Taylor, Paul Michael, 1990, *The folk biology of the Tobelo people: a study in folk classification.* Smithsonian Contributions to Anthropology, Number 34. Washington: Smithsonian Institution Press.

Terrell, John, 1986, *Prehistory in the Pacific Islands: a study of variation in language, customs, and human biology.* Cambridge: Cambridge University Press.

1989, Commentary: what Lapita is and what Lapita isn't. *Antiquity* 63:623-626.

Tharp, J.A. and Y-Bham Buon-Ya, 1980, *A Rhade-English dictionary with English-Rhade finderlist. PL*, C-58.

Thomas, Stephen, 1987, *The last navigator.* London: Hutchinson.

Tindi Radja Manik, 1977, *Kamus bahasa Dairi-Pakpak-Indonesia.* Jakarta: Pusat Pembinaan dan Pengembangan Bahasa, Departemen Pendidikan dan Kebudayaan.

Toorn, J.L. van der, 1891, *Minangkabausch-Maleisch-Nederlandsch woordenboek.* The Hague: Nijhoff.

Tregear, Edward, 1969, *The Maori-Polynesian comparative dictionary.* Oosterhout, The Netherlands: Anthropological Publications.

Tryon, Darrell T., 1967, *Dehu-English dictionary. PL*, C-6.

1976a, *English-Dehu dictionary. PL*, C-7.

1976b, *New Hebrides languages: an internal classification. PL*, C-50.

Tryon, D.T., ed., 1994, *Comparative Austronesian dictionary.* Berlin: Mouton de Gruyter.

Tryon, D.T. and M-J. Dubois, 1969, *Nengone dictionary. PL*, C-9.

1971, *English-Nengone dictionary. PL*, C-23.

Tryon, D.T. and B.D. Hackman, 1983, *Solomon Islands languages: an internal classification. PL*, C-72.

Tsuchida, Shigeru, 1976, *Reconstruction of Proto-Tsouic phonology.* Study of Languages and Cultures of Asia and Africa Monograph Series 5. Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa.

1977, Some plant names in Formosan languages. *Computational Analyses of Asian & African Languages* 7:79-119.

1982, *A comparative vocabulary of Austronesian languages of Sinicized ethnic groups in Taiwan*, part I: *West Taiwan.* Memoirs of the Faculty of Letters, University of Tokyo, No.7.

1983, Austronesian languages in Taiwan (Formosa). In S.A. Wurm and Shirô Hattori, eds *Language atlas of the Pacific area*, part 2: *Japan area, Taiwan (Formosa), Philippines, mainland and insular South-East Asia.* Canberra: The Australian Academy of the Humanities, in collaboration with the Japan Academy. *PL*, C-67.

1985, Kulon: Yet another Austronesian language in Taiwan? *Bulletin of the Institute of Ethnology*, Academia Sinica 60:1-59.

Tsuchida, Shigeru, Yukihiro Yamada and Tsunekazu Moriguchi, 1987, *List of selected words of Batanic languages.* Tokyo: University of Tokyo.

Tuuk, H.N. van der, 1971, *A grammar of Toba Batak.* KITLV Translation Series 13. The Hague: Nijhoff.

Twomey, Kevin, 1961, Dictionary English-Basilaki and Basilaki-English. 2 parts. MS.

Valeri, Valerio, 1980, Notes on the meaning of marriage prestations among the Huaulu of Seram. In Fox, ed. 1980:178-192.

1985, *Kingship and sacrifice: ritual and society in ancient Hawaii.* Chicago: University of Chicago Press.

Vanderwal, R., 1973, Prehistoric studies in central coastal Papua. PhD thesis, Australian National University, Canberra.

Vanoverbergh, Morice, 1933, *A dictionary of Lepanto Igorot or Kankanay. Anthropos* Linguistic Monograph 12.

1972, *Isneg-English vocabulary. OL* Special Publication No.11. Honolulu: University of Hawaii Press.

Veen, H. van der, 1940, *Tae'(Zuid-Toradjasch)-Nederlandsch woordenboek.* The Hague: Nijhoff.

Vennemann, Theo, 1975, An explanation of drift. In Charles Li, ed. *Word order and word order change*, 269-305. Austin: University of Texas Press.

Vergouwen, J.C., 1964, *The social organization and customary law of the Toba-Batak of northern Sumatra.* KITLV Translation Series 7. The Hague: Nijhoff. (Translated by Jeune Scott-Kemball from his 1933 *Het rechtsleven der Toba-Bataks.*)

Verheijen, Jilis A.J., 1970, *Kamus Manggarai II: Indonesia-Manggarai.* The Hague: Nijhoff.

1982, *Komodo: het eiland, het volk en de taal. VKI* 96.

1984, *Plant names in Austronesian linguistics. NUSA* 20.

Vester, Helmut, 1940, Die Areale und Arealtypen der Angiospermen-Familien. Erster Teil. Mit 93 Figuren. *Botanisches Archiv* 41:203-275.

Walker, Dale F., 1976, *A grammar of the Lampung language: the Pesisir dialect of Way Lima.* Jakarta: Badan Penyelenggara Seri Nusa.

Walsh, D.S. and Bruce Biggs, 1966, *Proto-Polynesian word list 1. Te Reo* Monographs. Auckland: Linguistic Society of New Zealand.

Walter, Richard, 1989, Lapita fishing strategies: a review of the archaeological and linguistic evidence. *Pacific Studies* 13/1:127-144.

Wantalangi, A., et al., 1985, *Kamus Tondano-Indonesia.* Jakarta: Pusat Pembinaan dan Pengembangan Bahasa.

Warneck, Joh, 1977 [1906], *Toba-Batak-Deutsches Wörterbuch (mit den Ergänzungen von Joh. Winkler, neu herausgegeben von R. Roolvink, mit einem Register Deutsch-Batak von K.A. Adelaar).* The Hague: Nijhoff.

Waruno Mahdi, 1988, *Morphophonologische Besonderheiten und historische Phonologie des Malagasy.* Veröffentlichungen des Seminars für Indonesische und Südseesprachen der Universität Hamburg, Band 20. Berlin-Hamburg: Dietrich Reimer.

Wass, Richard C., 1984, *An annotated checklist of the fishes of Samoa.* N[ational] O[ceanic and] A[tmospheric] A[dministration] Technical Report, NMFS [National Marine Fishes Service] SSRF-781. Washington: United States Department of Commerce.

Waterhouse, J.H.L., 1949, *A Roviana and English dictionary.* (Revised and enlarged by L.M.Jones.) Sydney: Epworth Press.

Waterson, H. Roxana, 1986, The ideology and terminology of kinship among the Sa'dan Toraja. *BKI* 142:87-112.

Weisler, M. and P.V. Kirch, 1985, The structure of settlement space in a Polynesian chiefdom: Kawela, Moloka'i, Hawaiian Islands. *New Zealand Journal of Archaeology* 7:129-158.

Welsch, R.L., J. Terrell and J.A. Nadolski, 1992, Language and culture on the North coast of New Guinea. *American Anthropologist* 94/3:568-600.

White, Geoffrey M., 1988, *Cheke Holo (Maringe/Hograno) dictionary. PL*, C-97.

Wijngaarden, J.K., 1896, *Sawuneesche woordenlijst.* The Hague: Nijhoff.

Wilkinson, R.J., 1932, *A Malay-English dictionary (romanized).* Mytilene, Greece; reprinted 1942-43, Tokyo, Daitoa Syppan Kabusiki Kaisya, in two parts numbered separately. 1st edn 1901; many subsequent revisions including:

1959, *A Malay-English dictionary.* London: Macmillan.

1961, *An abridged Malay-English dictionary.* London: Macmillan.

Williams, H.W., 1971, *A dictionary of the Maori language* (7th edn). Wellington: Government Printer. (Several earlier editions, e.g. 1957, 6th edn.)

Winstedt, Richard, 1963, *An unabridged English-Malay dictionary* (3rd edn). Kuala Lumpur: Marican. (1st edn 1958.)

Wittgenstein, L., 1969, Tagebücher 1914-1916. In *Ludwig Wittgenstein: Schriften 1*, 85-185. Frankfurt am Main: Suhrkamp.

Wivell, Richard, 1981, *Kairiru lexicon. WPAALMS* No.59.

Wolff, John U., 1972, *A dictionary of Cebuano Visayan.* Cornell University and Linguistic Society of the Philippines.

1974, Proto-Austronesian *r and *d. *OL* 13:77-121.

1976, Malay borrowings in Tagalog. *SEA History & Historiography, Essays in Honor of D.G.E. Hall*, 345-367.

1982, Proto-Austronesian **c*, **z*, **g*, and **T*. In Halim, Carrington and Wurm, eds 1982b:1-30.

1988, The PAN consonant system. In McGinn, ed. 1988:125-147.

1991, Was there a contrast between PAN *C and *t? In Blust, ed. 1991:535-549.

1993, The PAN phonemes *ñ and *N. *OL* 32/1:45-61.

Wouden, F.A.E. van, 1968, *Types of social structure in eastern Indonesia.* The Hague: Nijhoff. (Translation of his 1935 *Sociale structuurtypen in de groote oost* by Rodney Needham.)

Wright, L.H., 1964, *A Kuanua dictionary.* Rabaul: Methodist Mission Press. (A revision of R.H. Rickard, 1889, A dictionary of the New Britain dialect and English. MS. Library, Institut für Indonesische und Südseesprachen, Universität Hamburg.)

Wurm, S.A. and Lois Carrington, eds, 1978, *Second International Conference on Austronesian Linguistics: proceedings,* fascicle 1: *Western Austronesian*, fascicle 2: *Eastern Austronesian. PL*, C-61.

Wurm, S.A. and D.C. Laycock, eds, 1970, *Pacific linguistic studies in honour of Arthur Capell. PL*, C-13.

Wurm, S.A. and B. Wilson, 1975, *English finderlist of reconstructions in Austronesian languages (post-Brandstetter). PL*, C-33.

Yap, Fe Aldave, 1977, *A comparative study of Philippine lexicons.* Manila: Institute of National Language, Department of Education and Culture.

Yawata, I. and Y.H. Sinoto, eds, 1968, *Prehistoric culture in Oceania: a symposium.* Honolulu: Bishop Museum Press.

Yen, D.E., 1975, Indigenous food processing in Oceania. In Margaret L. Arnott, ed. *Gastronomy: the anthropology of food and food habits*, 147-168. The Hague and Paris: Mouton.

Zann, Leon P., 1980, *Tuvalu's subsistence fisheries.* Suva: The Institute of Marine Resources, University of the South Pacific.

Z'Graggen, J.A., 1975, Comparative wordlists of the Admiralty Islands languages, collected by W.E. Smythe. *Workpapers in Papua New Guinea Languages* 14:117-216.

1980a, *A comparative word list of the Rai coast languages, Madang Province, Papua New Guinea. PL*, D-30.

1980b, *A comparative word list of the Northern Adelbert Range languages, Madang Province, Papua New Guinea. PL*, D-31.

1980c, *A comparative word list of the Mabuso languages, Madang Province, Papua New Guinea. PL*, D-32.

1980d, *A comparative word list of the Southern Adelbert Range languages, Madang Province, Papua New Guinea. PL*, D-33.

Ziegler, Alan C., 1972, Guide to native land mammals of Northeast New Guinea. Preliminary version for use of Wau Ecology Institute. Mimeo, Honolulu, Bishop Museum.

Zoetmulder, P.J., 1983, *De taal van het Adiparwa: een grammaticale studie van het Oudjavaans.* (Koninklijk Instituut voor Taal-, Land- en Volkenkunde Indonesische Herdrukken). Dordrecht, The Netherlands/Cinnaminson, USA: Foris Publications.

Zoetmulder, P.J., with the collaboration of S.O. Robson, 1982, *Old Javanese–English dictionary* (2 vols). The Hague: Nijhoff.

Zorc, R. David, 1971, Proto-Philippine finderlist. Ithaca, New York: Cornell. (English glossary added in 1973.) Unpublished MS.

1977, *The Bisayan dialects of the Philippines: subgrouping and reconstruction. PL*, C-44.

1978, Proto-Philippine word accent: innovation or Proto-Hesperonesian retention? In Wurm and Carrington, eds 1978:67-119.

1979a, *Core etymological dictionary of Filipino.* Manila: Linguistic Society of the Philippines.

1979b, An etymological, bilingual dictionary - esoteric or essential? *Philippine Journal of Linguistics* 10:63-73.

1982, Where, O where, have the laryngeals gone? Austronesian laryngeals re-examined. In Halim, Carrington and Wurm, eds 1982b:111-144.

1983, Proto Austronesian accent revisited. *Philippine Journal of Linguistics* 14/1:1-24.

1986. The genetic relationships of Philippine languages. In Geraghty, Carrington and Wurm, eds 1986:147-173.

1987, Austronesian apicals (*dDzZ) and the Philippine non-evidence. In Donald C. Laycock and Werner Winter, eds *A world of language: papers presented to Professor S. A. Wurm on his 65th birthday*, 751-761. *PL*, C-100.

1990, The Austronesian monosyllabic root, radical or phonestheme. In Baldi, ed. 1990:175-193.

n.d., Philippine and Austronesian data system. File cards and sheets. MS.

(back matter) Pawley, A.K. and Ross, M.D. editors. *Austronesian Terminologies: Continuity and change.*
C-127, viii + 631 pages. Pacific Linguistics, The Australian National University, 1994. DOI:*10.15144/PL-C127.back*